

LABORATORY TEST PROFILES:

Test Name:

Acid Fast Bacilli (AFB)

See Mycobacteriology (TB) Smear and Culture (AFB).

Test Name:

Adenovirus Antibody

Lab and Phone #:

Virus Serology Laboratory (617) 983-6396

Use of Test:

Serodiagnosis of recent infection with this agent.

Test Includes:

Quantitative IgG antibody complement fixation testing using group antigens for human adenoviruses.

Significant Result:

Seroconversion or four-fold increase in titer.

Limitations:

Anticomplementary activity may interfere.

Availability:

As requested.

Turnaround Time:

2 to 7 days upon receipt of convalescent serum.

Sample and Volume:

3 mL of serum.

Forms Required:

Virus Serology Requisition Form.

Sample Test Kit:

Virus Serology Test Kit.

Sample Collection:

Acute and convalescent serum. See collection instructions in test kit.

Shipping Requirements:

Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional tests recommended: Respiratory Virus Antibody; Adenovirus Culture.

Test Name:

Adenovirus Culture

Lab and Phone #:

Virus Isolation Laboratory (617) 983-6382

Limitations:

Asymptomatic shedding of adenoviruses frequently occurs in stool and throat.

Availability:

As requested.

Turnaround Time:

2 to 10 days.

Sample:

Eye swab, throat and/or nasopharyngeal swab (combined specimen preferred), stool, urine, cerebrospinal fluid, and tissue.

Forms Required:

Virus Isolation Requisition Form.

Sample Collection:

Call the laboratory for collection instructions.

Sample Test Kit:

Virus Isolation Kit.

Shipping Requirements:

Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Note: Culture for additional viruses may be performed at the discretion of the laboratory. Serotyping of adenovirus isolates may be performed at CDC in outbreak situations.

Test Name:	<u>Aeromonas species</u> See Enteric Pathogens, Referred Culture.
Test Name:	<u>Alkalescens-dispar</u> (former name for E. coli O Antigen Groups 1 and 25) See Enteric Pathogens, Referred Culture.
Test Name:	<u>Amebiasis Serology</u> See CDC Serology-Bacterial/Fungal Protozoal.
Test Name:	<u>Anthrax</u> See <i>Bacillus anthracis</i> Culture.
Test Name:	<u>Arbovirus Culture, Avian</u>
Lab and Phone #:	Virus Isolation Laboratory (617) 983-6382
Use of Test:	To confirm selected PCR results.
Test Includes:	Isolation of Eastern Equine Encephalitis Virus (EEEV), West Nile Virus (WNV) or other viruses.
Turnaround Time:	3 to 7 days.
Sample and Volume:	Bird, dead, whole body, intact.
Forms Required:	West Nile Virus Requisition Form for reporting dead birds. The form is included in the sample collection test kit.
Sample Test Kit:	West Nile Kit.
Sample Collection:	See instructions included in kit.
Shipping Requirements:	Transport to the laboratory within 3 to 5 hours at refrigerator temperature. Use triple packaging system with ice pack for transporting by Courier Service. Apply a biohazard label and mark the outer container "Diagnostic Specimen" as appropriate.
Comments:	Information as to where the bird was found (exact location) must accompany the specimen.
Test Name:	<u>Arbovirus Culture, Human</u>
Lab and Phone #:	Virus Isolation Laboratory (617) 983-6382
Test Includes:	Isolation of Eastern Equine Encephalitis Virus (EEEV) or West Nile Virus WNV).
Limitations:	Isolates positive for virus other than EEEV or WNV may be forwarded to CDC for identification.
Availability:	As requested. Testing is restricted to illness onsets between May and October unless provided with a travel history to an endemic area. Consult the laboratory from November through April.
Turnaround Time:	3 to 7 days.
Sample and Volume:	Brain tissue, spinal cord, or 2 mL of aseptically collected cerebrospinal fluid.
Forms Required:	Virus Isolation/Arbovirus Requisition Form.
Sample Test Kit:	Provided by user.
Sample Collection:	Consult laboratory for details.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperature. Use triple

<p>Comments:</p>	<p>packaging system with ice pack for transporting by Courier Service. Apply a biohazard label and mark the outer container “Diagnostic Specimen” as appropriate.</p> <p>Additional tests recommended: Serology preferred (Eastern Equine Encephalitis Antibody, West Nile Virus Antibody).</p> <p>Note: Culture for additional viruses may be performed at the discretion of the laboratory.</p>
<p>Test Name:</p> <p>Lab and Phone #:</p> <p>Test Includes:</p> <p>Limitations:</p> <p>Availability:</p> <p>Turnaround Time:</p> <p>Sample and Volume:</p> <p>Forms Required:</p> <p>Sample Test Kit:</p> <p>Sample Collection:</p> <p>Shipping Requirements:</p>	<p><u>Arbovirus Culture, Other</u></p> <p>Virus Isolation Laboratory (617) 983-6382</p> <p>Isolation of Eastern Equine Encephalitis Virus (EEEV) or West Nile Virus (WNV).</p> <p>Isolates positive for virus other than EEEV or WNV maybe forwarded to CDC for identification.</p> <p>As requested.</p> <p>3 to 7 days.</p> <p>Varies, depending upon species. Call the laboratory for instructions.</p> <p>Virus Isolation/Arbovirus Requisition Form.</p> <p>Provided by user.</p> <p>Call the laboratory for instructions prior to collection.</p> <p>Transport to the laboratory within 24 hours at refrigerator temperature. Use triple packaging system with ice pack for transporting by Courier Service. Apply a biohazard label and mark the outer container “Diagnostic Specimen” as appropriate.</p>
<p>Comments:</p>	<p>Additional tests recommended: Depending upon species, serology may be preferred (Eastern Equine Encephalitis Antibody, West Nile Virus Antibody).</p> <p>Note: Culture for additional viruses may be performed at the discretion of the laboratory.</p>
<p>Test Name:</p> <p>Lab and Phone #:</p> <p>Test Includes:</p> <p>Limitations:</p> <p>Availability:</p> <p>Turnaround Time:</p> <p>Sample and Volume:</p> <p>Forms Required:</p> <p>Sample Test Kit:</p> <p>Sample Collection:</p> <p>Shipping Requirements:</p>	<p><u>Arbovirus PCR, Avian</u></p> <p>Virus Isolation Laboratory (617) 983-6382 or (617) 983-6796</p> <p>Detects the presence of arboviral genetic material from Eastern Equine Encephalitis (EEEV) and West Nile Virus (WNV).</p> <p>Detection of related viruses is not possible.</p> <p>Upon approval of Arboviral Program.</p> <p>2 to 4 days.</p> <p>Bird, dead, whole body, intact.</p> <p>West Nile Virus Requisition Form for reporting dead birds. The form is included in the sample collection kit.</p> <p>West Nile Virus Kit.</p> <p>Instructions for collecting samples are included in the test kit.</p> <p>Transport to the laboratory within 3 to 5 hours at refrigerator temperature. Use triple packaging system with ice pack for transporting by Courier Service. Apply a biohazard label and mark the outer container “Diagnostic Specimen” as appropriate.</p>
<p>Comments:</p>	<p>Information as to where the bird was found (exact location) must accompany the specimen.</p>

Test Name: Arbovirus PCR, Other
Lab and Phone #: **Vector-Borne Disease Surveillance Laboratory (617) 983-6796**
Use of Test: Detects the presence of arboviral genetic material from Eastern Equine Encephalitis (EEEV) and West Nile Virus (WNV).
Availability: As requested.
Turnaround Time: 2 to 4 days.
Sample and Volume: Varies, depending upon species. Call the Virus Isolation Laboratory at (617) 983-6382 for information on sample types and mosquito pools.
Sample Test Kit: Provided by user.
Sample Collection: Call the laboratory for instructions prior to collecting sample.
Shipping Requirements: Transport to the laboratory within 24 hours at refrigerator temperature. Use triple packaging system for transporting by Courier Service. Apply a biohazard label and mark the outer container "Clinical Diagnostic Specimen" as appropriate.
Comments: **Note:** Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name: Arbovirus Plaque Reduction Neutralization Test –Antibody (PRNT)
Lab and Phone #: **Virus Isolation Laboratory (617) 983-6382**
Use of Test: Titration of sera for determination of antibody specific to Eastern Equine Encephalitis Virus (EEEV) or West Nile Virus (WNV) and as confirmation of EIA results.
Availability: As requested. Testing is restricted to illness onsets between May and October unless provided with a travel history to an endemic area. Consult the laboratory from November through April.
Turnaround Time: 3 to 7 days.
Sample and Volume: 3 mL of serum; at least 1 mL of cerebrospinal fluid collected aseptically.
Forms Required: Virus Isolation /Arbovirus Requisition Form.
Sample Test Kit: Provided by user.
Sample Collection: Call the laboratory prior to sample collection for instructions.
Shipping Requirements: Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments: **Additional tests recommended:** Serology (Eastern Equine Encephalitis Antibody, West Nile Virus Antibody).
Note: PRNT for additional antibody to other arboviral agents may be performed at the discretion of the laboratory.

Test Name: Arbovirus Plaque Reduction Neutralization Test –Virus (PRNT)
Lab and Phone #: **Virus Isolation Laboratory (617) 983-6382**
Use of Test: Confirmation of West Nile Virus or Eastern Equine Encephalitis Virus infection in isolates.
Availability: As requested. For humans, testing is restricted to illness onsets between May and October unless provided with a travel history to an endemic area. Consult the

Turnaround Time:	laboratory from November through April. 3 to 7 days.
Sample and Volume:	Brain tissue, spinal cord, 2 mL of aseptically collected cerebrospinal fluid, birds, other mammalian specimens. Contact laboratory prior to specimen collection.
Forms Required:	Virus Isolation /Arbovirus Requisition Form.
Sample Test Kit:	Provided by user.
Sample Collection:	Call the laboratory for instructions prior to sample collection.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments:	Note: Culture for additional viruses may be performed at the discretion of the laboratory.
Test Name:	<u>Arcobacter species</u> See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.
Test Name:	<u>Arsenic (Total), Hair</u> (for research purposes only).
Lab and Phone #:	Analytical Chemistry Laboratory (617) 983-6653
Use of Test:	To monitor possible toxic exposure to arsenic.
Method of Analysis:	Acid digestion followed by graphite furnace atomic absorption spectroscopy.
Normal Range:	Less than 0.5 µg/g
Toxic Concentrations:	Concentrations of arsenic in chronic poisoning are generally in the 1 to 5 ug/g range, but may range as high as 40 µg/g.
Turnaround Time:	10 working days.
Sample Size:	1.0 gram
Sampling Instructions:	Call laboratory for sampling instructions.
Forms Required:	Proper documentation of provider, patient and sample.
Sample Container:	Submit in a clean, zip-lock, plastic bag.
Shipping Requirements:	Secure container, package, mark and label properly to avoid sample loss during delivery.
Test Name:	<u>Arsenic (Total), Urine</u> (for research purposes only).
Lab and Phone #:	Analytical Chemistry Laboratory (617) 983-6653
Use of Test:	To measure acute exposure to arsenic.
Method of Analysis:	Acid extraction followed by graphite furnace atomic absorption spectroscopy.
Normal Range:	0 to 20 ug/g creatinine
Turnaround Time:	10 working days.
Sample Volume:	100 mL
Sampling Instructions:	Call laboratory for sampling instructions and container.
Forms Required:	Proper documentation of provider, patient and sample.

Container: Trace metal-free, 8 ounce, urine specimen, collection container.

Collection: First void sample or an aliquot of a 24-hour urine collection. Measure and record the volume on the required paperwork.

Shipping Requirements: Sample must be refrigerated. Sample must be submitted to the laboratory for preservation within 24 hours of collection. Secure container, package, mark and label properly to avoid sample loss and ensure safe delivery.

Comments: All trace metal levels in urine are corrected for creatinine.

Test Name: [Aspergillosis Serology](#)
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: [Babesiosis, Serology](#)
See CDC Serology.

Test Name: [Bacillus anthracis Culture](#)

Lab and Phone #: **Bacteriology Reference Laboratory (617) 983-6607**

Use of Test: To rule out infection caused by *Bacillus anthracis*.

Test Includes: Subculture identification or isolation and identification of *B. anthracis* from lesions, eschars, tissue, blood, sputa, cerebral spinal fluid, etc. as well as environmental sources acceptable with prior consultation.

Normal Range: Negative for *B. anthracis*.

Contraindications: Patient does not have clinical evidence of anthrax.

Availability: Monday through Friday.

Turnaround Time: 2 to 5 days.

Sample: Pure subculture for identification or confirmation, primary specimen for isolation and identification, swab of lesion or eschar, tissue, blood culture or sputum.

Forms Required: Bacteriology Requisition Form.

Sample Container: Subculture: pure subculture growing on a suitable slanted substrate. Use a screw capped tube. Primary specimen: Commercial aerobic blood culture bottle for blood; sterile screw-capped tube collected with or without swab for all others.

Sample Test Kit: Legionella Transport Kit.

Sample Collection: Use a blood culture bottle for blood. Use a dry swab and sterile tube to collect serous fluid, biopsy, sputum etc.

Shipping Requirements: Subculture or blood culture bottle: Use triple packaging system conforming to the USPS and/or DOT regulations. For primary specimen other than blood, same day delivery is recommended. Submit sample on coolant (Legionella Transport Kit may be used). If same day delivery is not available priority overnight transport is recommended. Specimen should be frozen and submitted in dry ice in a suitable container provided by user.

Test Name: [Bacillus cereus Culture, Food](#)
See *Bacillus cereus* Plate Count, Food.

Test Name:	<u>Bacillus cereus Culture, Stool</u> See Enteric Pathogens, Routine Culture. Note: Available through local health departments in Massachusetts only. Limited to outbreak situations wherein <i>B. cereus</i> has been isolated and quantified in significant numbers from related food samples.
Test Name:	<u>Bacillus cereus Plate Count, Food</u>
Lab and Phone #:	Bacteriology Food Laboratory (617) 983-6610
Use of Test:	To support epidemiologic evidence implicating food as a possible source of illness.
Special Instructions:	Food samples must be submitted through local or state public health agencies and implicated in an outbreak (1 or more ill consumers). The laboratory should be notified by phone prior to submission. If the sample is a commercial food or if the suspect agent is chemical, the laboratory investigation is handled by the Environmental Chemistry Laboratory at the SLI or by the FDA.
Test Includes:	Culture of sample (Mannitol-egg yolk polymyxin agar, MYP plate count series), organoleptics.
Limitations:	Food will be examined for <i>B. cereus</i> only if the clinical and epidemiologic information is compatible with <i>B. cereus</i> foodborne disease.
Contraindications:	Food samples are examined from single or multiple cases of illness.
Availability:	Monday through Friday.
Turnaround Time:	2 to 7 days.
Sample and Volume:	More than 200 grams of implicated food.
Forms Required:	Sample Submission Forms are obtainable through the Bacteriology Food Laboratory (617) 983-6610, the MA Food Protection Program (617) 983-6712, and the local Board of Health.
Sample Container:	Original sample container as submitted by inspector or other sterile leak proof container.
Sample Collection:	Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Label with source (name of establishment or individual), type of sample, time and date of collection along with other pertinent information.
Shipping Requirements:	Transport or ship samples on ice in appropriate packagings.
Comments:	Additional tests recommended: <i>Bacillus cereus</i> Stool Culture.

Test Name:	<u>Bacterial Culture Identification</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	To identify an isolate for use in treatment selection and/or epidemiological studies.
Test Includes:	Identification of pure isolates determined to be of clinical significance as described in the history of the patient.
Limitations:	Identification of obligate anaerobes not performed.
Availability:	Monday through Friday.
Turnaround Time:	2 days to 1 month.
Sample:	Pure, actively growing culture on suitable agar slant.
Forms Required:	Bacteriology Requisition Form.
Shipping Requirements:	Use the triple packaging system. If pathogens are known or suspected, package,

mark, label and ship the sample according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional tests recommended: Prior laboratory work-up and submission of lab results are required.

Test Name:

Lab and Phone #:

Use of Test:

Bacterial Typing, Pulsed Field Gel Electrophoresis (PFGE)

Molecular Diagnostic Laboratory (617) 983-6612

To determine if isolates from different sources (i.e., patient and environmental isolates) are the same. Test is very discriminatory, and is primarily used in food related outbreaks. All confirmed isolates of enteric pathogens should be submitted to the Enteric Laboratory. (See Enteric Pathogens, Referred Culture.) Stool specimens from cases of suspected enteric infection should be submitted to the Enteric Laboratory. Enteric pathogens isolated from stool cultures will be analyzed by PFGE in outbreak associated cases. Isolates of non-enteric pathogens should be submitted to the Reference laboratory. (See Referred Culture Identification, Non-Enteric.) All isolates received by the PFGE Laboratory are stored at $\leq -70^{\circ}\text{C}$. This allows for the comparison of these strains to others submitted in the future.

Test Includes:

Bacterial strain typing using restriction endonuclease (enzyme) digestion of bacterial chromosomal DNA.

Interpretation of Results:

Contact the Epidemiology staff (617-983-6800) concerning results of foodborne investigations.

Limitations:

PFGE is not a diagnostic test. Results are used in conjunction with epidemiological findings that result from intense investigation. PFGE is performed on all unique cultures of *Salmonella* sp., *E. coli* O157:H7 and *Shigella sonnei*, that have been identified by the Enteric Laboratory. Currently, PFGE is also performed on unique cultures of *Listeria monocytogenes*. Accurate identification of all isolates must be confirmed prior to PFGE testing. Results are interpreted based on banding patterns.

Availability:

By special request only, Monday through Friday.

Turnaround Time:

1 to 2 weeks for pure cultures. Turnaround time is delayed if the isolate submitted is contaminated.

Sample:

Pure isolates must be received on agar slants.

Forms Required:

Bacteriology Requisition Form. Forms may be obtained by calling (617) 983-6600. Please write PFGE in under "other tests".

Shipping Requirements:

Ship at room temperature. Packaging and shipping of infectious substances must meet USPS, USDOT and/or IATA regulations as applicable.

Test Name:

Bartonella Serology

See CDC Serology.

Test Name:

Beta Lactamase Detection (GC)

See Gonorrhea Culture

Lab and Phone #:

Bacteriology Laboratory (617) 983-6606

Use of Test:

To determine the presence or absence of beta lactamase, the enzyme that destroys

	penicillin. This test will also be performed on any isolates of <i>Moraxella catarrhalis</i> isolated from routine cultures in this laboratory.
Test Includes:	Testing for the presence of the beta lactam-destroying enzyme, beta lactamase, by the Nitrocefin Direct Plate Method.
Limitations:	A negative test does not verify penicillin sensitivity since an organism may not produce beta lactamase yet be resistant to penicillin. The test must be performed on pure cultures since organisms, other than the gonococcus, may also carry this trait.
Availability:	Tuesday through Friday.
Turnaround Time:	Same day on viable cultures, except for those received that are greater than 48 hours since restreak. Subcultures that are older than 48 hours upon receipt will be restreaked for testing on the following day.
Sample:	Pure, viable culture of <i>Neisseria gonorrhoeae</i> .
Forms Required:	Bacteriology Requisition Form. Forms may be obtained by calling 617-983-6600.
Sample Container:	User provides the triple packaging system to meet all current regulatory shipping requirements for infectious substances.
Shipping Requirements:	Ship 24-hour isolate on Thayer-Martin slant, at room temperature in shipping container approved for infectious substances to arrive the next day. Package, mark and label as infectious substance.
Comments:	Additional tests recommended: Testing for penicillin susceptibility when the organism does not produce the enzyme.
Test Name:	<u>Beta Lactamase Detection (<i>Haemophilus influenzae</i>, <i>Staphylococcus aureus</i>)</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	To determine ability of the organism to produce beta lactamase. (Most useful for <i>H. influenzae</i> and <i>S. aureus</i> .)
Test Includes:	Testing of aerobic bacteria for the presence of the beta lactam-destroying enzyme, beta lactamase.
Limitations:	Some organisms do not produce beta lactamase but are penicillin resistant. The testing of obligate anaerobes is not performed.
Contraindications:	Not done on mixed cultures.
Availability:	Monday through Friday.
Turnaround Time:	1 to 2 days.
Sample:	Pure culture of organism on an agar slant.
Forms Required:	Bacteriology Requisition Form.
Sample Container:	Provided by user.
Shipping Requirements:	Package sample using triple packaging system. If the sample contains known pathogens, mark, label and ship the samples as an infectious substance.
Comments:	Additional tests recommended: Minimum Inhibitory Concentration for some beta lactamase negative organisms.

Test Name: **Blastomycosis Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name:	<u><i>Bordetella pertussis</i> and other <i>Bordetella</i> spp. Culture</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	Diagnosis and confirmation of pertussis.
Test Includes:	Isolation and identification of <i>Bordetella pertussis</i> and other <i>Bordetella</i> spp. on patients whose age is less than 11 years, all cultures are acceptable regardless of cough duration. On patients whose age is 11 years or older, cultures are acceptable for the examination of <i>Bordetella pertussis</i> if the cough duration of the patient is less than 14 days. If cough duration is greater than 14 days, serology is the more appropriate diagnostic test.
Normal Range:	Recommended culture time: from time of cough onset to 14 days.
Limitations:	Results are not reliable if an outdated kit is used. An improperly obtained and/or cultured specimen taken at a less than the optimal stage of illness may not yield positive results.
Availability:	Monday through Friday.
Turnaround Time:	3 days for a presumptive report to 7 days for written report. All negative cultures are held for an additional 5 days of incubation and, if positive, are reported to the sender.
Sample:	Nasopharyngeal swab moistened in 1% CAS and rolled or swabbed over the slanted Charcoal Transport medium provided in the kit. If a commercially prepared Regan-Lowe deep is used the swab should be immersed in the medium and left in the culture tube. If a culture cannot be sent on the day it is taken, refrigerate the cultured specimen and send it on the next available day.
Forms Required:	Pertussis Culture Requisition Form.
Sample Test Kit:	Pertussis Culture Kit or commercial Regan-Lowe deep provided by the user.
Sample Collection:	Nasopharyngeal swab moistened in 1% CAS and rolled over the Charcoal Transport Slant after the specimen is taken. All material and complete directions are provided in the Pertussis Culture Kit.
Shipping Requirements:	Use triple packaging system. Same day delivery is recommended. Overnight priority mail with coolant is acceptable if same day delivery is not possible.

Test Name:	<u><i>Bordetella pertussis</i> Serology</u>
Lab and Phone #:	Bacteriology Laboratory (617)-983-6600
Use of Test:	To determine the presence of IgG antibody to pertussis toxin, which is consistent with the presence of, or a recent infection with, <i>Bordetella pertussis</i> .
Test Includes:	Serologic, single serum, testing for the presence of IgG antibody to pertussis toxin.
Normal Range:	< 20 ug/mL IgG antibody to <i>Bordetella pertussis</i> toxin.
Limitations:	This test is not interpretable in children less than 11 years of age. In patients 11 years of age, or older, the results are most readily interpretable when the blood is drawn greater than 14 days and less than 56 days from cough onset. Results less than 20µg/mL may occur in individuals who have pertussis, particularly if the blood has been drawn less than 14 days after cough onset. Send only when cough duration is greater than 14 days.
Availability:	Monday through Friday.
Turnaround Time:	2 to 14 days. Repeat testing and time of year may effect how often test is performed.

Sample and Volume:	Serum (≥ 1 mL) or whole blood (5-10 mL) collected in a red top or Serum Separator Tube (SST). Serum is preferable to whole blood. Do not send both serology and culture specimen without prior laboratory approval.
Forms Required:	Pertussis Serology Requisition Form. Forms may be obtained by calling (617)-983-6600.
Sample Test Kit:	Pertussis serology specimen kit. Pertussis serology kits may be ordered by calling (617)-983-6640.
Sample Collection:	Collect 5 to 10 mL of whole blood in red top tube or SST. Use 13mm x100mm, or 16mm x 100mm tubes for collection. Allow the blood to clot at least 30 minutes. Separate the serum if a centrifuge is available.
Shipping Requirements:	Serum may be shipped at room temperature, cold or frozen. Whole blood must be maintained at a temperature between 2°C and 27°C. Use triple packaging system for shipping samples.
Test Name:	<u><i>Borrelia burgdorferi</i></u> See Lyme Disease, Western Blot IgM and IgG.
Test Name:	<u>Botulism Culture, Food or Stool</u>
Lab and Phone #:	ALL BOTULISM TESTING IS REFERRED TO THE MASSACHUSETTS DIVISION OF EPIDEMIOLOGY. PLEASE CONTACT EPIDEMIOLOGY AT (617) 983-6800 FOR INSTRUCTIONS. PLEASE CONTACT THE ENTERIC BACTERIOLOGY LABORATORY AT (617) 983-6609 PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF. INSTRUCT COURIER TO HAVE SWITCHBOARD CALL ENTERIC LAB UPON ARRIVAL.
Use of Test:	To support a clinical diagnosis of botulism or infant botulism.
Test Includes:	Culture for <i>Clostridium botulinum</i> . Confirmation and toxin typing by Mouse Neutralization Assay.
Limitations:	Sufficient specimen amount must be submitted.
Contraindications:	Test is performed only on patients who exhibit neurological symptoms suggestive of botulism or infant botulism, on patients who have consumed food suspected to contain botulinum toxin, or on foods highly suspected to contain botulinum toxin.
Availability:	By special request only. Monday through Friday. Weekends in emergency situations.
Turnaround Time:	Minimum 1 week.
Sample and Volume:	25 to 50 grams of stool. No preservative needed. 25 to 200 grams of implicated food samples are required for the test.
Sample Container:	Sterile, leakproof container and insulated box with coolant. DO NOT FREEZE.
Shipping Requirements:	Pack, mark and label sample as an infectious substance using a UN approved shipping container. "Select Agent" requirements apply. Shipment by courier as soon as possible is optimal. If necessary, ship overnight with coolant. DO NOT FREEZE.
Comments:	Additional tests recommended: Botulism Toxin, Food or Stool and/or Botulism Toxin, Serum.

Test Name:	<u>Botulism Culture, Referred Culture</u>
Lab and Phone #:	ALL BOTULISM TESTING IS REFERRED TO THE MASSACHUSETTS DIVISION OF EPIDEMIOLOGY. PLEASE CONTACT EPIDEMIOLOGY AT (617) 983-6800 FOR INSTRUCTIONS. PLEASE CONTACT THE ENTERIC BACTERIOLOGY LABORATORY AT (617) 983-6609 PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF.
Use of Test:	To support a clinical diagnosis of botulism or infant botulism.
Test Includes:	Confirmation by Mouse Neutralization Assay of culture suspected to be <i>Clostridium botulinum</i> . Toxin typing on positive cultures is also performed by Mouse Neutralization Assay.
Contraindications:	Test is performed only on cultures from patients who exhibit neurological symptoms suggestive of botulism or infant botulism, on cultures from patients who have consumed food suspected to contain botulinum toxin, or on cultures isolated from food(s) implicated in suspected cases of botulism.
Availability:	By special request only, Monday through Friday. Weekends in emergency situations.
Turnaround Time:	Minimum 1 week.
Sample:	Pure culture in screw-capped tube.
Forms Required:	Bacteriology Requisition Form. Forms may be obtained by calling (617) 983-6600.
Sample Container:	Use a UN approved shipping container for infectious substances Class 6.2.
Shipping Requirements:	Ship at room temperature using UN approved packagings. Package, mark, label and ship as infectious substance. "Select Agent" requirements apply. For more information, see last section in manual on packaging and shipping specimens.
Comments:	Additional tests recommended: Botulism Culture, Food or Stool and/or Botulism Toxin, Food or Stool and/or Botulism Toxin, Serum.

Test Name: **Botulism Toxin, Mouse Neutralization Assay**
See Botulism Toxin, Food or Stool and/or Botulism Toxin, Serum.

Test Name: **Botulism Toxin, Food or Stool**
Lab and Phone #: ALL BOTULISM TESTING IS REFERRED TO THE MASSACHUSETTS DIVISION OF EPIDEMIOLOGY. PLEASE CONTACT **EPIDEMIOLOGY AT (617) 983-6800** FOR INSTRUCTIONS. PLEASE CONTACT THE **ENTERIC BACTERIOLOGY LAB AT (617) 983-6609** PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF. INSTRUCT COURIER TO HAVE SWITCHBOARD CALL ENTERIC LAB UPON ARRIVAL.

Use of Test: To support a diagnosis of botulism, infant botulism, or to rule out botulism as part of a differential diagnosis.

Test Includes: Toxin extraction from stool or food sample and testing for *Clostridium botulinum* neurotoxins A through G by Mouse Neutralization Assay.

Limitations: Sufficient specimen amount must be submitted.

Contraindications: Assay performed only on patients who exhibit neurological symptoms suggestive of botulism or infant botulism, on patients who have consumed food suspected to contain botulinum toxin, or on foods that are highly

	suspected to contain botulinum toxin.
Availability:	By special request only. Monday through Friday. Weekends in emergency situations.
Turnaround Time:	Minimum 1 week.
Sample and Volume:	25 to 50 gs of stool, no preservatives or 25 to 200 g of implicated food.
Sample Container:	Sterile leakproof container. Insulated box with coolant. DO NOT FREEZE.
Shipping Requirements:	Pack, mark and label sample as an infectious substance, using a UN approved shipping container. "Select Agent" requirements apply. Shipment by courier as soon as possible is optimal. If necessary, ship overnight with coolant. DO NOT FREEZE.
Comments:	Additional tests recommended: Botulism Culture, Stool or Food and/or Botulism Toxin, Serum.
Test Name:	<u>Botulism Toxin, Serum</u>
Lab and Phone #:	ALL BOTULISM TESTING IS REFERRED TO THE MASSACHUSETTS DIVISION OF EPIDEMIOLOGY. PLEASE CONTACT EPIDEMIOLOGY AT (617) 983-6800 FOR INSTRUCTIONS. PLEASE CONTACT THE ENTERIC BACTERIOLOGY LABORATORY AT (617) 983-6609 PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF. INSTRUCT THE COURIER TO HAVE SWITCHBOARD CALL ENTERIC LABORATORY UPON ARRIVAL.
Use of Test:	To support a diagnosis of botulism or infant botulism or to rule out botulism as a part of a differential diagnosis.
Test Includes:	Testing serum for <i>Clostridium botulinum</i> neurotoxins A through G by Mouse Neutralization Assay
Limitations:	Sufficient specimen must be submitted.
Contraindications:	Assay performed only on patients who exhibit neurological symptoms suggestive of botulism or infant botulism or on patients who have consumed food suspected to contain botulinum toxin.
Availability:	By special request only, Monday through Friday. Weekends in emergency situations.
Turnaround Time:	Minimum 1 week.
Sample and Volume:	10 to 15 mL of serum; keep refrigerated. DO NOT FREEZE. PLEASE NOTE: In cases of suspected infant botulism, attending physician may feel that the drawing of blood may be too traumatic for the patient and, therefore, could limit any requested botulism testing to stool specimens and/or food samples.
Sample Container:	Sterile serum vials. Insulated box with coolant.
Shipping Requirements:	Package, mark and label sample as an infectious substance. "Select Agent" requirements apply. Shipment by courier as soon as possible is optimal. If necessary, ship overnight with coolant. DO NOT FREEZE.
Comments:	Additional tests recommended: Botulism Culture, Referred Culture and/or Botulism Culture, Stool or Food and/or Botulism Toxin, Stool or Food.

Test Name:	<u>Brucella abortus, Serology (non-specific for Brucella abortus)</u>
Lab and Phone #:	Bacteriology Laboratory (617) 983-6600
Use of Test:	Positive test suggests a current infection; low titers may indicate a previous exposure to a related organism. Test is sensitive for <i>B. abortus</i> , <i>B. melitensis</i> , and <i>B. suis</i> only. See Interpretation of Results.
Test Includes:	Quantitative tube agglutination procedure for assaying titer of homologous agglutinins.
Interpretation of Results:	A 1:80 titer is considered a weakly positive serum while most patients with acute undulant fever demonstrate a titer of 1:320 or greater. Serum from patients with acute brucellosis demonstrate little or no antibody titer during the first 10 days of the disease. A negative result, therefore, does not preclude an active infection. Conversely, a positive result may not be diagnostic, since the serum may exhibit a rise in heterologous agglutinins due to a different febrile infection. This test is useful for screening purposes but should not be used as a substitute for conventional isolation and serological identification of the etiological agent.
Limitations:	<ol style="list-style-type: none"> 1. The major limitation is that of interpretation. See Interpretation of results, above. 2. It is advisable to run several serum specimens taken at different times to detect quantitative differences in agglutinin content. 3. There are many known antigenic similarities and cross-reactions with other antigens such as <i>Francisella tularensis</i>, <i>Proteus</i> OX19, <i>Vibrio cholerae</i>, and <i>Yersinia enterocolitica</i> serotype 9.
Availability:	Routinely run once every two weeks. Special arrangements for immediate testing can be made for high priority cases.
Turnaround Time:	Routinely, 2 weeks (see availability, above). Test procedure itself takes 48 hours to complete.
Sample and Volume:	Serum, collect 5 to 10 mL of whole blood aseptically from patient.
Sampling Instructions:	Allow blood to clot and obtain the syneresed serum with a Pasteur pipette. If serum is not free of erythrocytes, clarify by centrifugation. DO NOT HEAT. Specimen must be clear and free of visible fat. It must be free of excessive hemolysis and not bacterially contaminated.
Forms Required:	Bacterial Serology Requisition Form. Forms may be obtained by calling (617) 983-6600.
Sample Container:	Sealed serum tube.
Shipping Requirements:	Use triple packing system for shipping. Outer container should be an insulated box containing coolant. DO NOT FREEZE.

Test Name:	<u>Brucella Culture</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	To detect infections caused by <i>Brucella</i> spp.
Test Includes:	Subculture of blood, bone marrow, abscess or biopsy of liver or spleen for <i>Brucella</i> spp. Primary specimens for isolation and identification are acceptable with prior consultation.
Normal Range:	Negative for <i>Brucella</i> spp.
Limitations:	Blood cultures are only useful early in the acute phase of the disease.
Availability:	Monday through Friday.

Turnaround Time: Up to 3 weeks. Preliminary report may be obtained earlier.

Sample and Volume: 5 mL of blood, bone marrow, exudate, and tissue.

Forms Required: Bacteriology Requisition Form.

Sample Container: Pure subculture of organism; commercial aerobic blood culture bottle with CO₂ provided by the user; sterile vial for specimens other than blood.

Sample Collection: 5 mL of blood aseptically drawn and inoculated into 50 mL of culture broth (user provided).

Shipping Requirements: Subculture: Use triple packaging system for shipping infectious substances in accordance with postal regulations.
Primary Specimen: Rapid transport with same day delivery in a triple packaging system with a cold pack (Legionella Kit may be used); or sample may be frozen and packed in a suitable container with dry ice (provided by the user) if overnight delivery is anticipated.

Comments: **Additional tests recommended:** *Brucella abortus*, Serology.

Test Name: **Brucellosis**
See *Brucella abortus* Serology (non-specific for *Brucella abortus*) and/or *Brucella* Culture.

Test Name: **Cadmium, Urine** (for research purposes only).

Lab and Phone: **Analytical Chemistry Laboratory (617) 983-6653**

Use of Test: To measure acute cadmium exposure.

Method of Analysis: Acid extraction followed by graphite furnace atomic absorption spectroscopy.

Acceptable Range: 0 to 5 µg/g creatinine

Toxic Concentrations: > 5 ug/g creatinine

Turnaround Time: 10 working days.

Sample Volume: 100 mL

Sampling Instructions: Call laboratory for sampling instructions and container.

Forms Required: Proper documentation of provider, patient and sample.

Container: Trace metal free urine specimen collection container

Collection: First void sample or an aliquot of a 24-hour urine collection. Measure and record the volume on the required form.

Shipping Requirements: The sample must be refrigerated and must be submitted to the laboratory for preservation within 24 hours of collection. Secure container, package, mark and label properly to avoid sample loss and ensure safe delivery.

Comments: All trace metal levels in urine are corrected for creatinine.

Test Name: **Calicivirus PCR**

Lab and Phone #: **Virus Isolation Laboratory (617) 983-6382**

Use of Test: For outbreak investigations only, not for individual diagnosis.

Special Instructions: **Samples are sent to CDC.** Please call the Virus Isolation Laboratory prior to submitting specimens.

Limitations: Calicivirus may be detected in the stools of asymptomatic individuals. Some calicivirus types may not be detected with primers currently in use. Available patient information should be considered when interpreting test results. This

Sample: PCR-based test should be considered an investigational tool.
Forms Required: Stool (No additives or preservatives).
Sample Container: Virus Isolation Requisition Form.
Sample Collection: Sterile screw-capped container.
Sample Test Kit: Call the laboratory for sampling instruction.
Shipping Requirements: Provided by user.
 Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments: **Additional tests recommended:** Bacterial and other testing for causes of gastroenteritis may be appropriate based on incubation period, symptoms and other factors.

Test Name: **California Encephalitis Antibody**
Sample sent to CDC.

Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: To confirm or to rule out infection with this agent.
Significant Result: Seroconversion or four-fold increase in titer.
Limitations: Non-specific fluorescence may interfere.
Sample and Volume: 3 mL of serum, no additives.
Forms Required: Virus Serology or CDC Requisition Form
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent or convalescent serum only. See instruction in test kit.
Shipping Requirements: Use triple packaging system for USPS. If the sample contains a known pathogen, use a triple packaging system. Label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name: **California Encephalitis IgM Antibody**
Sample sent to CDC.

Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Early serodiagnosis of an infection with this group of agents.
Significant Result: Presence of IgM indicates current or recent infection with this agent.
Limitations: Cross-reactions occur with other members of the California encephalitis group, although the LaCrosse strain is the most likely agent to be encountered in the midwest region.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology or CDC Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute serum collected 1 to 3 days after onset. See instructions in test kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the

container according to DOT and/or USPS regulations for infectious substances.

Test Name: **California Encephalitis Virus Culture**

See Arbovirus Culture.

Samples Sent to CDC.

Test Name: **Campylobacter Culture, Food**

See *Campylobacter* Isolation, Food.

Test Name: **Campylobacter Isolation, Food**

Lab and Phone #: **Bacteriology Food Laboratory (617) 983-6610**

Use of Test: To support epidemiologic evidence implicating a food as a possible source of illness.

Special Instructions: Food samples must be submitted through local or state public health agencies and implicated in an outbreak (1 or more ill consumers). The laboratory should be notified by phone prior to submission. If the sample is a commercial food the FDA, Food Protection Program handles the investigation. If the suspect agent is chemical, the investigation is handled by the Environmental Chemistry Laboratory at the SLI.

Test Includes: Enrichment and culture of sample for *Campylobacter* species, Organoleptics.

Limitations: Foods will be examined for *Campylobacter* only if the clinical and epidemiologic information is compatible with *Campylobacter* foodborne disease.

Contraindications: Food samples are examined from single or multiple cases of illness.

Availability: Monday through Friday.

Turnaround Time: 3 to 7 days.

Sample and Volume: More than 200 grams of implicated food.

Forms Required: Sample Submission Forms are obtainable through the Food Microbiology Lab (617) 983-6610, the MA Division of Food and Drugs, Food Protection Program (617) 983-6712, and local Board of Health.

Sample Container: Original sample container as submitted by inspector or other sterile leak proof container.

Sample Collection: Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Label with source (name of establishment or individual), type of sample, time and date of collection along with other pertinent information.

Shipping Requirements: Transport or ship samples on ice in appropriate packagings.

Comments: **Additional Tests Recommended:** Enteric Pathogens, Routine Culture.

Test Name: **Campylobacter species**

See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.

Test Name:	<u>Candidiasis Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal
Test Name:	<u>CDC Culture Identification</u>
Lab and Phone #:	Bacteriology Laboratory (617) 983-6600
Test Includes:	Any specimen or culture sent to CDC for specialized culture and for identification procedure. For <i>Streptococcus pneumoniae</i> serotyping, see Serotyping, <i>Streptococcus pneumoniae</i> , <i>Streptococcus pyogenes</i> (M and T Typing).
Availability:	Monday through Friday.
Turnaround Time:	Variable.
Sample:	Swab in transport medium, blood or other body fluids, or pure culture isolate.
Forms Required:	Bacteriology Requisition Form. Forms may be obtained by calling (617) 983-6600.
Shipping Requirements:	Package and ship as an infectious substance according to the DOT, USPS or IATA regulations as applicable.
Test Name:	<u>CDC Culture Identification</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Test Includes:	Any specimen or culture sent to CDC for specialized culture and/or identification procedure. For <i>Streptococcus pneumoniae</i> serotyping, see Serotyping, <i>Streptococcus pneumoniae</i> , <i>Streptococcus pyogenes</i> (M and T Typing).
Availability:	Monday through Friday.
Turnaround Time:	Variable.
Sample:	Pure culture isolate or primary specimen sent with prior consultation.
Forms Required:	Bacteriology Requisition Form indicating justification for testing or request form for CDC submission, (617) 983-6607.
Shipping Requirements:	Package and ship as an infectious substance according to the DOT, USPS or IATA regulations as applicable.
Test Name:	<u>CDC Culture Identification, Mycobacteriology</u>
Lab and Phone #:	Mycobacteriology Laboratory (617) 983-6381
Special Instructions:	Please phone the laboratory in advance to request.
Turnaround Time:	More than 30 days.
Forms Required:	This non-routine test is not on the Mycobacteriology request form.
Sample Test Kit:	TB Culture Kit.
Test Name:	<u>CDC Serology-Bacterial/Fungal/Protozoal</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Test Includes:	Qualitative and/or quantitative assays for various bacterial, fungal and protozoal agents performed by the CDC, Atlanta, GA. Specific agent desired must be written on requisition form.
Turnaround Time:	2 to 4 weeks.

Sample Volume: 1 mL of serum or cerebrospinal fluid.
Forms Required: Request form for CDC submission.
Sample Container: Provided by user.
Sample Collection: Routine blood draw or spinal tap.
Shipping Requirements: Use triple packaging system. Package, mark, label, and ship as infectious substance according to DOT, USPS or IATA regulations as applicable.
Comments: **Additional information needed:** paired sera are preferred for leptospirosis. Call the lab prior to submitting sera for malaria.

Test Name: **CDC Serology**
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Test Includes: **Viral agent testing performed by the CDC in Atlanta, Puerto Rico or Fort Collins.** Agents to be tested for, but not limited to, include Dengue fever, Ehrlichia, Yellow Fever, Hepatitis E and Lymphocytic Choriomeningitis (LCM)
Significant Result: Interpretation included with report.
Turnaround Time: 2 to 4 weeks.
Sample and Volume: 3 - 5 mL of serum.
Forms Required: Virus Serology or CDC Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Usually acute and convalescent sera. See instructions in test kit.
Shipping Requirements: If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments: **Additional information needed:** Relevant travel history, vaccine history, and date of onset must accompany sample

Test Name: **Chagas' Disease Serology**
 See CDC Serology–Bacterial/Fungal/Protozoal

Test Name: **Chancroid, *Haemophilus ducreyi*, Culture**
 See *Haemophilus ducreyi*, Culture.

Test Name: **Chemical Contaminants, Food**
Lab and Phone: **Analytical Chemistry Laboratory (617) 983-6653**
Use of Test: Investigation of chemically induced food-borne illness.
Test Includes: Metals, organics, shellfish toxins, biogenic amines.
Turnaround Time: 5 to 10 working days
Sample: Food product and appropriate control samples.
Forms Required: Food Borne Illness Intake-Form as applicable.
Container: Varies with testing algorithm.
Collection: Call the laboratory for appropriate sampling, storage and transport procedures.
Shipping Requirements: Vary with testing algorithm.

Test Name: *Chlamydia psittaci* Antibody
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of recent or current infection with this agent.
Test Includes: Quantitative IgG antibody CF testing for Chlamydia Psittaci.
Significant Result: Seroconversion or four-fold increase in titer.
Limitations: Anticomplementary activity may interfere.
Availability: Per requested.
Turnaround Time: 2 to 7 days upon receipt of convalescent serum.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent serum. See collection instructions in test kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name: *Chlamydia trachomatis* Antibody
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of recent or current infection with this agent.
Test Includes: IgG testing for *C. trachomatis* by indirect immunofluorescence assay.
Significant Result: Seroconversion or four-fold increase in titer.
Availability: As requested.
Turnaround Time: 2 to 7 days.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute serum. See instructions in sample test kit. If positive, a convalescent serum is required for conclusive interpretation.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use the triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name: *Chlamydia trachomatis*, Amplified Molecular Assay (AMA)
Lab and Phone #: **Bacteriology Laboratory (617) 983-6600**
TESTING IS AVAILABLE ONLY ON SPECIMENS FROM ASSIGNED CLINICS: Assigned clinics are specific sites selected to monitor disease prevalence throughout the Commonwealth.
Use of Test: Selective screening of individuals at risk of Sexually Transmitted Diseases (STDs), including sexually active adolescents, contacts of STD patients, individuals with multiple sexual partners, and individuals exhibiting symptoms of an STD.

Test Includes:	An Amplified Molecular Assay.
Normal Range:	Negative for Chlamydia.
Limitations:	The only forensically acceptable Chlamydia test for medico-legal cases is a culture. AMA is not recommended for post-treatment assessment (“Test of Cure”) and is not valid for sexual abuse/assault. In addition, specimens that may be tested are limited to those urogenital sites listed above; other sites are not approved by the FDA and will not be tested. The allowable time lapses between collection of the specimen, transport and receipt is critical and of limited length.
Availability:	Monday through Friday.
Turnaround Time:	1 to 4 days.
Sample:	Endocervical swab for females, urethral swabs for males, urines for males and females.
Forms Required:	Chlamydia Requisition Forms, supplied to assigned clinics by prior arrangement.
Sample Container:	Chlamydia Kits for transport of swab specimens. Transport outfits for urine supplied with collection kits. Kits are supplied to assigned clinics by prior arrangement.
Sample Test Kits:	Supplied to assigned clinics by prior arrangement.
Sample Collection:	In addition to the instructions provided in the kit, on-site training is provided to assigned clinics.
Shipping Requirements:	Direct courier delivery to Chlamydia Lab. Double packaging system used for transport.
Comments:	Additional tests recommended: Specimens from sites other than those listed as acceptable for this test may be for tested for Chlamydia by culture method, Antigen Detection or by Direct Fluorescent Antibody (DFA) depending on collection site and circumstances of testing. These tests are available through private laboratories.

Test Name: **Cholera (*Vibrio cholerae*)**
See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.

Test Name: ***Clostridium botulinum*, Culture**
See Botulism Culture, Food or Stool and/or Botulism Culture, Referred Culture.

Test Name: ***Clostridium perfringens* Culture, Food**
See *Clostridium perfringens* Plate Count, Food.

Test Name: ***Clostridium perfringens* Culture, Stool**
See Enteric Pathogens, Routine Culture.
Note: Available through local Health Departments in Massachusetts only. Testing is limited to outbreak situations wherein *C. perfringens* has been isolated and quantified in significant numbers from related food samples.

Test Name:	<u><i>Clostridium perfringens</i> Plate Count, Food</u>
Lab and Phone #:	Bacteriology Food Laboratory (617) 983-6610
Use of Test:	To support epidemiologic evidence implicating a food as a possible source of illness.
Special Instructions:	Food samples must be submitted through local or state public health agencies and implicated in an outbreak (1 or more ill consumers). The laboratory should be notified by phone prior to submission. If the sample is a commercial food or if the suspect agent is chemical, the laboratory investigation is handled by the Environmental Chemistry Laboratory at the SLI or the FDA.
Test Includes:	Culture of sample (TSC plate count series), Organoleptics.
Limitations:	Foods will be examined for <i>C. perfringens</i> only if the clinical and epidemiologic information is compatible with <i>C. perfringens</i> foodborne disease.
Contraindications:	Food samples are examined from single or multiple cases of illness.
Availability:	Monday through Friday.
Turnaround Time:	2 to 7 days.
Sample and Volume:	More than 200 grams of implicated food.
Forms Required:	Sample Submission Forms are obtainable through the Food Microbiology Lab (617) 983-6610, MA Division of Food and Drugs, Food Protection Program (617) 983-6712, and the local Board of Health.
Sample Container:	Original sample container as submitted by inspector or other sterile leak proof container.
Sample Collection:	Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Label with source (name of establishment or individual), type of sample, time and date of collection along with other pertinent information. Do not freeze specimens suspected to contain <i>C. perfringens</i> , as this will diminish the number of organisms recovered on culture.
Shipping Requirements:	Transport or ship samples on ice.
Comments:	Additional test recommended: <i>Clostridium perfringens</i> Stool Toxin.

Test Name: ***Coccidioidomycosis* Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: ***Corynebacterium diphtheriae* Culture**
See Diphtheria, Culture and In Vitro Toxigenicity.

Test Name: ***Cytomegalovirus* Antibody**
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of recent or current infection with this agent.
Test Includes: Quantitative IgG antibody CF testing for CMV.
Significant Result: Seroconversion or four-fold increase in titer.
Limitations: Anticomplementary activity may interfere.

Availability: As requested.
Turnaround Time: 2 to 7 days.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent serum.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use the triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments: **Additional tests recommended:** Cytomegalovirus Culture.

Test Name: **Cytomegalovirus Culture**
Lab and Phone #: **Virus Isolation Laboratory (617) 983-6382**
Special Instructions: Only samples having prior approval of the Virus Isolation Laboratory or from state affiliated institutions are accepted for testing.
Availability: As requested.
Turnaround Time: 2 to 28 days for positive report; 28 days for negative report.
Sample: Stool, urine, cerebral spinal fluid, tissue, buffy coat.
Forms Required: Virus Isolation Requisition Form.
Sample Test Kit: Provided by user.
Sample Collection: Call laboratory prior to collection.
Shipping Requirements: Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple Packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments: **Note:** Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name: **Cryptococcosis Serology**
 See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **Cysticercosis Serology**
 See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **Diphtheria, Culture and In Vitro Toxigenicity**
Lab and Phone #: **Bacteriology Reference Laboratory (617) 983-6607**
Use of Test: Rule out *Corynebacterium diphtheriae* as causative agent of infection.
Test Includes: Culture for *Corynebacterium diphtheriae*. In Vitro toxin assay is performed on all isolates. The CDC, Atlanta, GA, performs PCR testing with prior

Normal Range:	consultation.
Limitations:	Negative for <i>C. diphtheriae</i> .
Contraindications:	Screen for <i>C. diphtheriae</i> only. Rule out Group A <i>Streptococcus</i> .
Availability:	Lack of clinical evidence for infection with <i>C. diphtheriae</i> .
Turnaround Time:	Monday through Friday.
Sample:	24-hour preliminary report, if suspicious; final report in 3 to 4 days.
	Swab from the inflamed areas of the membranes in throat and nasopharynx, skin lesion and material from wounds removed by swab or aspiration.
Forms Required:	Bacteriology Requisition Form.
Sample Container:	Swab shipped dry in a sterile tube or in a special packet containing a desiccant such as silica gel provided by the user. A transport medium is not recommended.
Sample Collection:	Swabs from infected membranes in throat and nasopharynx; skin lesion.
Shipping Requirements:	Same day delivery is recommended. Use double packing system for courier. Overnight priority mail is recommended if same day delivery is not possible. Use triple packaging system for USPS.
Comments:	Additional tests recommended: Direct smear for organisms of Vincent's angina and culture for group A <i>Streptococcus</i> and <i>Arcanobacterium haemolyticum</i> .

Test Name: [Eastern Equine Encephalitis Culture](#)
See Arbovirus listings

Test Name:	<u>Eastern Equine Encephalitis Virus EIA</u>
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	Diagnosis of current infection with Eastern Equine Encephalitis Virus.
Test Includes:	Qualitative IgM capture EIA and IgG indirect EIA testing.
Significant Result:	Positive IgM; seroconversion with IgM and IgG.
Limitations:	May cross-react with other arboviruses.
Availability:	Routinely from May to October.
Turnaround Time:	2 to 7 days.
Sample and Volume:	3 mL of serum; at least 1 mL of cerebrospinal fluid collected aseptically.
Forms Required:	Virus Serology /Arbovirus Requisition Form.
Sample Test Kit:	Virus Serology Kit.
Sample Collection:	IgM: Acute serum collected 1-3 days after onset; convalescent collected 9 or more days after onset may be necessary. IgG: Acute serum may be used for testing but convalescent collected 9 or more days after onset may be necessary.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Transport or ship samples at refrigerated temperatures. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name: **Echinococcosis Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **Ehrlichiosis, Serology**
See CDC Serology.

Test Name: **Entamoeba histolytica Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **Enteric Pathogens, Referred Culture**
Lab and Phone #: **Bacteriology Laboratory (617) 983-6600**
Test Includes: Genus and species identification of pathogenic isolates in the Enterobacteriaceae, Campylobacteraceae, and Vibrionaceae families (including *Salmonella* sp., *Shigella* sp., *Yersinia* sp., *E. coli* O157:H7, *Alkalescens dispar* {*E. coli* O-Antigen Groups 1 and 25}, *Campylobacter* sp., *Arcobacter* sp., *Vibrio* sp., *Aeromonas* sp., and *Plesiomonas shigelloides*). Tests include serotyping for *Salmonella*, *Shigella*, *Vibrio cholerae*, and *E. coli* O157:H7 isolates and biogrouping for *Yersinia enterocolitica* isolates. Problematic isolates are submitted to CDC (Atlanta) for serotyping.
Limitations: 1. Serotyping is occasionally problematic if the culture has become rough and/or non-motile or is encapsulated.
2. Cultures of the Campylobacteriaceae must be submitted under more exacting conditions than those of the other organisms, i.e., pure culture is more important and timely submission is imperative. Sufficient growth must be obtained prior to sending sample to the State Laboratory.
Availability: Monday through Friday.
Turnaround Time: Usually 1 to 4 days for Enterobacteriaceae, 1 to 5 days for Campylobacteriaceae, and 3 to 5 days for Vibrionaceae.
Sample: Pure culture on appropriate medium (tubed media preferred).
Forms Required: Bacteriology Requisition Form. Forms may be obtained by calling (617) 983-6600.
Sample Container: Screw-capped tube.
Shipping Requirements: Ship in a UN approved container for shipment of infectious substances. See section on packaging and shipping specimens at the end of this manual. Media should be inoculated and incubated for 24 hours prior to shipping. Ship at ambient temperature. Pack, mark, label and ship sample as an infectious substance.

Test Name: **Enteric Pathogens, Routine Culture**
Lab and Phone #: **Bacteriology Laboratory (617) 983-6600**
Use of Test: Screen for bacterial cause of diarrheal disease.
Test Includes: Culturing for *Salmonella*, *Shigella*, *Campylobacter*, *Arcobacter*, *Yersinia*, *Vibrio*, and/or *E. coli* O157:H7. Also available only through Massachusetts local Health Departments are the following: Culturing for

Bacillus cereus, for *Clostridium perfringens*, and/or for *Staphylococcus aureus*. These last three tests are limited to outbreak situations wherein the respective organism has been isolated and quantified in significant numbers from related food samples.

Normal Range:

Negative for enteric pathogens.

Limitations:

Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. Urine or other foreign material must not be mixed with the stool material. The time interval between collection of the specimen and receipt in the Lab must not be greater than 5 days.

Availability:

Monday through Friday. Weekends during significant outbreaks.

Turnaround Time:

Minimum 72 hours, maximum 1 week.

Sample and Volume:

Stool specimen. Rectal swab is acceptable but less desirable than stool. For Enteric collection/transport kit, fill with stool to indicated line on container (i.e. approximately 1 gram of stool). DO NOT OVERFILL. For fresh stool, use sterile screw-capped plastic specimen collection jar. For Cary-Blair Medium, inoculate a small amount of stool below the surface of the medium.

Forms Required:

Enteric Lab Stool-Submission Requisition Form, EC-1 found in enteric (stool) collection/transport kit provided. In outbreak situations, please indicate on the submission form specific outbreak identification and whether specimen is from a food-handler or other employee or from an attendee.

Sample Test Kit:

For all suspected pathogens except *Vibrio* species, use an Enteric Kit (for stool collection and transport). Kits may be ordered by calling (617) 983-6640. If necessary, a fresh stool on ice is acceptable if delivered on the same day as collected. For stools in which *Vibrio* species is suspected, submission of stool specimen in Cary-Blair Transport Medium at room temperature is recommended. Enteric collection/transport kits may be used if necessary for any *Vibrio* sp. (EXCEPT *V. cholerae*, which must be shipped in Cary-Blair Medium) as long as the specimens are delivered to the State Lab in a timely fashion. Sufficient moisture content of the specimen is the most important factor in maintaining the viability of *Vibrio* species. Please call the Enteric Bacteriology Lab at (617) 983-6609 prior to submission whenever *Vibrio cholerae* is suspected.

Sample Collection:

For Enteric collection/transport kit, see instructions in kit. For fresh stools, collect aseptically into sterile specimen collection jar.

Shipping Requirements:

For Enteric collection/transport kit or Cary-Blair Medium, ship at room temperature. For fresh stools only, ship or transport on wet ice or with coolant. Ship as “diagnostic specimen” using double packing system if transported by courier and triple packaging system if shipping by USPS.

Test Name:

Enterohemorrhagic *E. coli* (EHEC) O157:H7

See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.

Test Name: [Enterohemorrhagic E. coli \(EHEC\) NON-O157:H7](#)
See Shiga Toxin (Verotoxin) Assay.

Test Name: [Enterovirus Culture](#)
Lab and Phone #: **Virus Isolation Laboratory (617) 983-6382**
Use of Test: May detect coxsackieviruses, echoviruses, polioviruses and other viruses.
Limitations: Enteroviruses may be recovered from stools of asymptomatic patients; vaccine strain polioviruses may be recovered from stools of recently vaccinated individuals or their contacts. This test is usually performed in the context of an outbreak.
Availability: As requested.
Turnaround Time: 2 to 10 days for positive report or 10 days for negative report.
Sample: Throat swab, stool, cerebrospinal fluid, tissue, vesicular fluid.
Forms Required: Virus Isolation Requisition.
Sample Test Kit: Provided by user.
Sample Collection: Call the laboratory for sample collection instructions.
Shipping Requirements: Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments: **Note:** Culture for additional viruses may be performed at the discretion of the laboratory. Typing of poliovirus performed but serotyping of other isolates is performed only at CDC under special circumstances.

Test Name: [Erythema Migrans](#)
See Lyme Disease, Western Blot IgM and IgG.

Test Name: [Farmer's Lung Serology](#)
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: [Febrile Agglutinins](#)
See *Brucella abortus* Serology and/or *Francisella tularensis* Serology.

Test Name: [Fifth Disease](#)
See Parvovirus B19 IgM and IgG Antibody.

Test Name: [Filth Analysis \(Quality Assurance\)](#)
Lab and Phone #: **Bacteriology Food Laboratory (617) 983-6610**
Use of Test: To verify and identify the presence of extraneous foreign matter in food.
Special Instructions: Perishable samples should be submitted as soon as possible. Samples

Test Includes:	containing sharp objects (e.g., glass) should be handled with caution. Examination of foods and liquids for extraneous material such as insects, larvae, rodent droppings, glass or other foreign matter, Organoleptics.
Limitations:	Perishables should be examined within 2 days.
Availability:	Monday through Friday.
Turnaround Time:	1 to 2 days.
Sample and Volume:	Remainder of sample.
Forms Required:	Sample Submission Forms are obtainable through the Food Microbiology Lab (617) 983-6610, the MA Division of Food and Drugs, Food Protection Program (617) 983-6712, and the local Board of Health.
Sample Container:	Original sample container as submitted by inspector, or leak proof container.
Sample Collection:	Samples should be submitted in leakproof packaging or original containers.
Shipping Requirements:	Transport or ship non-perishable food at room temperature. Transport or ship perishable food on ice.
Test Name:	<i>Francisella tularensis</i> Culture
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	To screen for infection due to <i>Francisella tularensis</i> .
Test Includes:	Subculture identification isolated from blood, lesions, lymph nodes, sputum, gastric, aspirates, pleural fluid, etc. Positive results are phoned. Primary specimens for isolation and identification require prior consultation.
Normal Range:	Negative for <i>Francisella tularensis</i> .
Limitations:	Only screened for <i>Francisella tularensis</i> .
Contraindications:	Patients without clinical signs of tularemia.
Availability:	Monday through Friday.
Turnaround Time:	Up to 5 days.
Sample and Volume:	Bacterial subculture (pure) growing on slant. Primary specimens including lesion biopsy or swab, scrapings, lymph node tissue or aspirates, gastric aspirate, pleural fluid, etc. are acceptable with prior consultation. Culture of blood is not recommended as blood cultures seldom reveal the organism and when positive may take 7 to 9 days before positive. Septi-Chek Blood System inoculated with 5 to 30 mL of blood has proven best for isolation of the organism from blood. Serology may prove helpful.
Forms Required:	Bacteriology Requisition Form.
Sample Container:	Sterile vial, swab in Amies or Stuart's transport medium, Commercial blood bottle (Septi-Chek) provided by user.
Sample Collection:	Aseptic collection of tissue and body fluid.
Shipping Requirements:	Subculture: Triple packaging system conforming to postal regulations is provided by the user. For primary specimens, if using rapid transport (same day delivery) a Legionella Kit may be used. If overnight delivery is unavoidable the specimen should be frozen and packed in a suitable container with dry ice. If a pathogen is known or suspected, pack, mark, label and ship the sample as an infectious substance. "Select agent" rule applies. See last section in manual on packaging and shipping specimens.
Comments:	Additional tests recommended: See <i>Francisella tularensis</i> Serology.

Test Name:	<u>Francisella tularensis Serology</u>
Lab and Phone #:	Bacteriology Laboratory (617) 983-6600
Use of Test:	Positive test suggests a current infection; low titers may indicate a previous exposure to a related organism. See Interpretation of Results.
Test Includes:	Quantitative tube agglutination procedure for assaying titer of homologous agglutinins.
Interpretation of Results:	Paired specimens taken during both the acute phase and the convalescent phase are recommended. A rise in agglutination titer from the first to the second specimen is highly suggestive of tularemia. In the absence of paired specimens, a titer of 1:80 to 1:160 in the acute phase together with symptoms compatible with tularemia is suggestive of the disease. A significant titer is not attained until the second week of the disease and rises to a maximum in 4 to 6 weeks. A negative result does not preclude an active infection. Conversely, a positive result may not be diagnostic since the serum may exhibit a rise in heterologous agglutinins due to a different febrile infection. This test is useful for screening purposes but should not be used as a substitute for conventional isolation and identification of the etiological agent.
Limitations:	<ol style="list-style-type: none"> 1. The major limitation is that of interpretation. See Interpretation of Results above. 2. It is advisable to run several serum specimens taken at different times to detect quantitative differences in agglutinin content. 3. In some sera, cross-reactions may occur with <i>Brucella</i> antigens. Testing for both <i>Francisella</i> and <i>Brucella</i> antigens is helpful since the homologous system is of significantly higher titer than the heterologous system.
Availability:	Routinely run once every two weeks. Special arrangements for immediate testing can be made for high priority cases.
Turnaround Time:	Routinely, 2 weeks maximum (see availability, above). Test procedure itself takes 24 hours to complete.
Sample:	Serum (see volume and collection, below).
Sample Volume:	Collect 5 to 10 mL of whole blood aseptically from patient.
Forms Required:	Bacterial Serology Requisition Form. Forms may be obtained by calling (617) 983-6600.
Sample Container:	Sealed serum tube.
Sample Collection:	Allow blood to clot and obtain the syneresed serum with a Pasteur pipette. If serum is not free of erythrocytes, clarify by centrifugation. DO NOT HEAT. Specimen must be clear and free of visible fat. It must be free of excessive hemolysis and not bacterially contaminated.
Shipping Requirements:	Triple packaging system provided by user. Ship sample on coolant. DO NOT FREEZE. If sample is known to contain a pathogen, package, mark, label and ship the sample as an infectious substance. "Select agent" rule applies. See last section in manual on packaging and shipping specimens.

Test Name: **Fungal Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name:**German Measles**

See Rubella Listings.

Test Name:**Gonorrhea Culture****Lab and Phone #:****Bacteriology Laboratory (617) 983-6600****Use of Test:**Screening and confirmation of *Neisseria gonorrhoeae*.**Test Includes:****DIAGNOSTIC TESTING ON PRIMARY CULTURES IS AVAILABLE ONLY ON SPECIMENS FROM ASSIGNED****CLINICS: Assigned clinics are specific sites selected to monitor disease prevalence throughout the Commonwealth.** Isolation and identification of *Neisseria* species recovered from primary cultures.Referred cultures for confirmation of *Neisseria gonorrhoeae* includes confirmatory testing on presumptive positive cultures (or oxidase positive cultures from clinics with limited testing capabilities) and genus and species identification on isolates referred for confirmation of *Neisseria gonorrhoeae*. Confirmation of antibiotic susceptibility patterns on isolates of *Neisseria gonorrhoeae* determined to be resistant.Beta lactamase testing by the Nitrocefin Direct Plate Method on all positive cultures. Susceptibility testing on all positive cultures: routinely six antibiotics tested (penicillin, tetracycline, ceftriaxone, ciprofloxacin, norfloxacin and ofloxacin); any isolate displaying any resistance or one that was submitted for a test of cure would initiate the testing of three additional antibiotics (cefoxitin, cefotaxime, and trobicin [spectinomycin]). Fluorescent Antibody (FA) confirmation of isolate from urogenital cultures that are not medico-legal cases. Confirmatory Cysteine Tryptose Agar (CTA) sugars on isolates from non-anogenital sources, on isolates from a child (<13 years old), and from medico-legal cases. Genus and species identification of any *Neisseria* species submitted as suspect for *Neisseria gonorrhoeae*.**Limitations:**

Since the estimated sensitivity of the culture is about 80% when all growth conditions are controlled, the major limitation is the quality of the specimen obtained and the handling of the specimen prior to receipt at the laboratory.

Availability:

Monday through Friday.

Turnaround Time:

1 to 5 days.

Sample:

Culture on Thayer Martin slant or plate: Primary culture on Thayer-Martin (TM) plate. Referred culture for confirmation on Thayer-Martin agar slant.

Forms Required:

For primary cultures: A gonorrhea culture requisition form (GC-1) complete with all information requested. This form should be submitted to the State Laboratory along with culture. The primary culture forms are available by prior arrangement.

For referred cultures: Use Bacteriology Form: FRMB1. Forms may be obtained by calling (617) 983-6600.

Sample Container:Use the using triple packaging container system to meet all current regulatory, diagnostic or infectious substance shipping requirements. Primary cultures should be maintained in a CO₂ environment (candle extinction jar, Gonopak, etc).

Sample Collection:	For Primary cultures: Swab from site of suspected infection streaked in a "Z" pattern (covering α to $\frac{1}{2}$ of the plate) to selective agar, cross-streaked and incubated at 35°-36°C, under 2-10% CO ₂ for a minimum of 16 hours before transporting.
Source:	The gonococcus is normally found in the columnar epithelial cells lining the endocervical canal and the urethra. A swab is used to collect material from exposed genital, anal and/or oropharyngeal sites. "Exposed" sites should be determined both on examination and interview of the patient. The cervix (if present) is the site of infection in the female and the site to be cultured routinely. In hysterectomized women, the urethra is the primary site of infection.
Incubation:	Primary cultures: Within 1 hour of inoculating the specimen, incubate the culture plate at 35°C, in a 2-10% CO ₂ atmosphere, for a minimum of 16 hours prior to transporting to the STD Laboratory.
Shipping Requirements:	<p>Referred cultures: Place 24 hour isolate on Thayer-Martin slant. Ship at room temperature in a UN approved shipping container for infectious substances to arrive the next day. Package, mark, label and ship referred cultures as infectious substances. If possible, transport referred cultures by courier to the STD Laboratory.</p> <p>Primary cultures: Primary cultures in a CO₂ environment (candle extinction jar or Gonopak, etc). must be delivered by same day courier to the STD Laboratory. If necessary, transport by First Class US Mail to arrive the next day.</p>
Test Name:	<p><u>Gonorrhea, <i>Neisseria gonorrhoeae</i>, Culture</u> See Gonorrhea Culture.</p>
Test Name:	<p><u>Gram Negative Bacilli</u> See Bacterial Culture Identification.</p>
Test Name:	<p><u>Gram Negative Diplococci</u> See Gonorrhea Culture for Confirmation of Presumptive Positive Referred Cultures.</p>
Lab and Phone #:	Bacteriology Laboratory (617) 983-6600
Use of Test:	To determine the presence or absence of organisms resembling <i>Neisseria gonorrhoeae</i> . Results of direct smear examination of exudate from an eye should always be interpreted in conjunction with culture results. Use of the direct smear in eye sources can give a rapid indication of the presence of intracellular gram negative diplococci, resembling <i>Neisseria gonorrhoeae</i> .
Test Includes:	Direct Smears: Examination of gram stained direct smear from <u>Eye</u> source only, submitted with culture from same source. See Gonorrhea Cultures for culture instructions. Prepare the culture from one side of the swab first and then prepare the slide from the remaining exudate.
Normal Range:	Organisms resembling <i>Neisseria gonorrhoeae</i> not seen.
Limitations:	Examination of gram stained direct smears does not confirm the presence

	of viable organisms. The results should be used as an adjunct to the results of the culture and clinical presentation. Differentiation of <i>Neisseria</i> species can be determined only by reactivity with specified biochemicals.
Availability:	Monday through Friday.
Turnaround Time:	One day for direct smear.
Sample:	Smear (the size of a dime) of swab from infected eye placed in the center of a 1x3 inch (12x75mm) microscope slide. Label frosted end of slide with patient's name and date of collection. Allow to air dry, place in slide transport container.
Forms Required:	Gonorrhea Culture Requisition Form (GC-1) complete with all information requested. Mark the words "Smear and Culture" on the form. This form should be submitted along with the smear and culture. If Form GC-1 is not available, use Bacteriology Requisition Form: FRMB1. Forms may be obtained by calling (617) 983-6600.
Sample Container:	Slide transport container provided by the user.
Sample Collection:	Collect some of the exudate on the swab and place on microscope slide as described in Specimen and Volume.
Shipping Requirements:	Send with accompanying culture to STD Lab. See Gonorrhea Culture for instructions to transport culture.
Test Name:	<u>Gram Positive Bacilli</u> See Bacterial Culture Identification.
Test Name:	<u>Gram Positive Cocci</u> See Bacterial Culture Identification.
Test Name:	<u><i>Haemophilus ducreyi</i>, Culture</u> Due to the extreme growth requirements of this organism please call the STD Laboratories directly before submitting a specimen at (617) 983-6606.
Lab and Phone #:	Bacteriology Laboratory (617) 983-6600
Use of Test:	To confirm <i>Haemophilus ducreyi</i> .
Test Includes:	The isolation and identification of <i>Haemophilus ducreyi</i> from a primary culture, genus and species identification of isolates referred for confirmation of <i>Haemophilus ducreyi</i> .
Normal Range:	Negative for <i>Haemophilus ducreyi</i> .
Limitations:	Sensitivity of the culture, in known endemic areas, is only about 50%. The delayed growth patterns are conducive to overgrowth with mold due to the saturated atmosphere. The special media (with Vancomycin) are not commercially available and have a limited shelf life of 1 week.
Availability:	Monday through Friday.
Turnaround Time:	5 to 10 days.
Sample:	Swab of genital ulcer or aspirate of pus inoculated onto special media (Chocolate Agar with Vancomycin and/or Rabbit Blood Agar with Vancomycin). The media should contain both a source of hemin and serum and also incorporate vancomycin, which suppresses normal genital bacterial flora allowing the isolation of the slow growing <i>Haemophilus ducreyi</i> .

	Should the special media not be available, substitute GC Chocolate Agar (with 1% IsoVitaleX) as the primary culture plate. GC Chocolate agar, prepared according to a specific formulation has been shown to be more sensitive for the recovery of <i>Haemophilus ducreyi</i> than other formulations.
Forms Required:	Chancroid Requisition Form with all information completed. The Chancroid Requisition Form is available from the STD Lab at (617) 983-6606. If the Chancroid Requisition Form is unavailable, use Bacteriology Requisition Form: FRMB1. These forms may be obtained by calling (617) 983-6600.
Sample Container:	Candle extinction jar or other system to provide a source of CO ₂ (e.g., GonoPak system), provided by the user.
Sample Collection:	For Primary cultures: Swab from the base of the ulcer (chancre) and up around the indurated edges. Inoculate media with swab in a "Z" pattern (covering α to $\frac{1}{2}$ of the plate), cross-streak the inoculum and incubate at 33°C, under 2-10% CO ₂ in an atmosphere that approximates 100% humidity, for a minimum of 48 hours before transporting.
Incubation:	Immediately after inoculation, place culture plate(s) into candle extinction jar with a wet paper towel on the bottom to obtain a water saturated atmosphere. Incubate at 33°C for 48 hours prior to moving from clinic site. If an incubation temperature of 33°C is not available, incubate at 35°C. higher temperatures will kill the organism; lower temperatures will retard growth and prolong the incubation time.
Shipping Requirements:	For Primary Cultures: Deliver, by courier, to the STD Laboratory, Room 459. Use triple packaging system. For Referred Cultures: Using triple packaging system, ship 24-48 hour isolate on GC Chocolate Agar slant at room temperature in a UN approved shipping container for Class 6.2 infectious substances. Package, mark, label and ship in accordance with DOT or USPS regulations for next day arrival.
Comments:	Additional tests recommended: Concurrent testing should be performed to rule out the presence of etiological agents of other genital ulcers, especially syphilis and Herpes simplex.
Test Name:	<u><i>Haemophilus ducreyi</i>, Direct Smear</u>
Lab and Phone #:	Bacteriology Laboratory (617) 983-6600
Use of Test:	To detect the presence of <i>Haemophilus ducreyi</i> .
Test Includes:	Microscopic examination of gram stained direct smear for the presence of organisms resembling <i>Haemophilus ducreyi</i> .
Normal Range:	Organisms resembling <i>Haemophilus ducreyi</i> not seen.
Limitations:	Examination of gram stained direct smears does not confirm the presence of viable organisms. The results should be used as an adjunct to clinical presentation.
Availability:	Monday through Friday.
Turnaround Time:	1 to 2 days.
Sample:	Smear of swab from genital ulcer, chancre, or aspirate of pus, placed in the center of a 1x3 inch (12x75mm) microscope slide. Label frosted end of slide with patient's name and date of collection. Allow slide to air dry, place in slide transport container.

Forms Required:	Chancroid Requisition Form with all information completed. The Chancroid Requisition Form is available from the STD Lab at (617) 983-6606. If the Chancroid Requisition Form is unavailable, use Bacteriology Form: FRMB1. Forms may be obtained by calling (617) 983-6600.
Sample Container:	Slide transport container provided by user.
Sample Collection:	Ulcer (chancr) specimens, swab from the base of the ulcer (chancr) and up around the indurated edges. Bubo specimens, obtain aspirate and place on slide as described above in Sample.
Shipping Requirements:	Use the double packaging system (e.g. slide transport container in a padded envelope) to send the sample to the STD Lab., Rm. 459 by USPS or by courier.
Test Name:	<u>Haemophilus influenzae Culture</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	To serotype isolate for use in treatment selection, beta lactamase production and/or epidemiological studies.
Test Includes:	Serotyping of <i>Haemophilus influenzae</i> .
Limitations:	Testing performed only on organisms isolated from normally sterile sites unless prior consultation is arranged.
Availability:	Monday through Friday.
Turnaround Time:	1 to 2 days.
Sample:	Pure young culture on chocolate agar slant.
Forms Required:	Bacteriology Requisition Form.
Shipping Requirements:	Ship in a UN approved container for Class 6.2 infectious substances. Ship at room temperature. Pack, mark, label and ship sample as an infectious substance in accordance with USPS and/ or DOT regulations.
Comments:	Additional tests recommended: Prior correct identification of <i>Haemophilus influenzae</i> is required.
Test Name:	<u>Hantavirus IgM and IgG</u>
	Specimens Sent to CDC.
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	Diagnosis of Hantavirus Pulmonary Syndrome.
Test Includes:	Qualitative IgM capture EIA and IgG indirect EIA testing using the Sin Nombre Virus antigen.
Significant Result:	Positive IgM combined with noncardiogenic pulmonary edema or bilateral interstitial infiltrates confirm Hantavirus Pulmonary Syndrome.
Limitations:	May cross-react with other Hantaviruses.
Availability:	Once per week.
Turnaround Time:	Several weeks.
Sample and Volume:	3 mL of serum.
Forms Required:	Virus Serology or CDC Requisition Form.
Sample Test Kit:	Virus Serology Kit.
Sample Collection:	Acute serum collected 1-3 days after onset. See sample test kit for instructions.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known

pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name:	<u>Hemorrhagic colitis <i>E. coli</i> O157:H7</u> See Enteric Pathogens, Referred Culture AND/OR Enteric Pathogens, Routine Culture.
Test Name:	<u>Herpes Simplex Culture</u>
Lab and Phone #:	Virology Laboratory (617) 983-6382
Test Includes:	Serotyping of herpes simplex types 1 and 2.
Special Instructions:	Only samples having prior approval of the Virus Isolation Laboratory or from state affiliated institutions are accepted for testing.
Availability:	As requested.
Turnaround Time:	2 to 10 days for positive report. 10 days for negative report.
Sample:	Lesion swab (oral, genital, skin), eye swab, cerebrospinal fluid, tissue, respiratory tract specimens.
Forms Required:	Virus Isolation Requisition Form.
Sample Test Kit:	Virus Isolation Kit.
Sample Collection:	See instructions in sample test kit.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperatures. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments:	Note: Culture for additional viruses may be performed at the discretion of the laboratory.
Test Name:	<u>Herpes Simplex Group Antibody</u>
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	Serodiagnosis of recent or current infection with this agent.
Test Includes:	Quantitative complement fixation (CF) testing for IgG antibody to herpes simplex group antigen.
Significant Result:	Seroconversion or four-fold increase in titer.
Limitations:	Anticomplementary activity may interfere.
Availability:	As requested.
Turnaround Time:	2 to 7 days upon receipt of convalescent serum.
Sample and Volume:	3 mL of serum, no additives.
Forms Required:	Virus Serology Requisition Form.
Sample Test Kit:	Virus Serology Kit.
Sample Collection:	Acute and convalescent serum. See directions for sampling in test kit.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the

Comments:	container according to DOT and/or USPS regulations for infectious substances. Additional tests recommended: Herpes Simplex Culture.
Test Name:	<u>Histoplasmosis Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u>HIV-1 Antibody Confirmation, OMT/Oral Fluid</u>
Lab and Telephone #:	HIV Laboratory (617) 983-6388 or (617) 983-6389
Use of Test:	Confirmation of HIV-1 antibody screening result for approved counseling and testing sites or for reference testing and epidemiologic studies.
Test Includes:	Enzyme-linked immuno-blot (Western Blot) analysis for detection of antibody to specific viral proteins of HIV-1. HIV-2 testing is not available for oral fluid specimens.
Limitations:	Only approved sites may submit samples.
Contraindications:	Must comply with Massachusetts General Laws regarding HIV testing (Chapter 111, section 70 f). The HIV-1, Western blot, will not be performed without repeatedly reactive HIV-1 EIA results.
Availability:	Monday through Friday, 9:00am to 5:00pm.
Turnaround Time:	One week.
Sample Volume:	Minimum of 1 mL OMT/oral fluid.
Forms Required:	HIV Laboratory Oral Fluid Sample Submission Form.
Sample Container:	OraSure oral specimen collection device must be used.
Sample Test Kit:	Use HIV single mailing or courier or HIV multiple mailing or courier kits.
Sample Collection:	Use an OraSure oral specimen collection device. Specimens received with less than the minimum required volume are rejected. Submission must include bar-coded label as the only identifier. The laboratory will not test any specimen received with a client's name, birth date or other personal identifiers.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Patient Preparation:	Informed consent for HIV testing must be obtained.
Comments:	Additional Information Required: Specimen collection date must appear on the sample submission form.

Test Name:	<u>HIV-1 Antibody Confirmation, Serum</u>
Lab and Telephone #:	HIV Laboratory (617) 983-6388 or (617) 983-6389
Use of Test:	Confirmation of HIV-1 antibody screening result for approved counseling and testing sites or for reference testing and epidemiologic studies.
Test Includes:	Enzyme-linked immuno- blot (Western Blot) analysis for detection of antibody to specific viral proteins of HIV-1.
Limitations:	Only approved sites may submit samples.
Contraindications:	Must comply with Massachusetts General Laws regarding HIV testing (Chapter

	111, section 70 f). The HIV-1, Western blot, will not be performed without repeatedly reactive HIV-1 EIA results.
Availability:	Monday through Friday, 9:00am to 5:00pm.
Turnaround Time:	One week.
Sample and Volume:	Minimum of 1 mL of serum or plasma.
Forms Required:	HIV Laboratory Serum Sample Submission Form.
Sample Container:	Use only serum separator tube without additives.
Sample Test Kit:	Use HIV single mailing or courier or HIV multiple mailing or courier kits.
Sample Collection:	Routine blood draw. A serum separator tube without additives is required. The specimen must arrive centrifuged with bar-coded label as the only identifier. The laboratory will not test any specimen received with a client's name, birth date or other personal identifiers.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Patient Preparation:	Informed consent for HIV testing must be obtained.
Comments:	Additional Information Required: Specimen collection date must appear on the Sample Submission form.
Test Name:	<u>HIV-1 Antibody Screen, OMT/ Oral Fluid</u>
Lab and Telephone #:	HIV Laboratory (617) 983-6388 or (617) 983-6389
Use of Test:	To determine antibody status to HIV-1, the causative agents of AIDS, at approved counseling and testing sites and for reference testing and epidemiological studies.
Test Includes:	Qualitative testing by a commercial enzyme immunoassay EIA procedure. This EIA procedure has the ability to detect antibody to HIV-1. HIV-1 Western Blot is performed if EIA is repeatedly reactive. HIV-2 testing is not available for oral fluid specimens.
Limitations:	Only approved sites may submit specimens. Does not determine presence of the HIV virus. Test may be non-reactive for several weeks following exposure or in the final stages of AIDS.
Contraindications:	Must comply with Massachusetts General Laws regarding HIV testing (Chapter 111, section 70 f).
Availability:	Monday through Friday, 9:00am to 5:00pm.
Turnaround Time:	One week.
Sample Volume:	Minimum of 1 mL of OMT/oral fluid.
Forms Required:	HIV Laboratory oral fluid Sample Submission Form.
Sample Container:	OraSure oral specimen collection device must be used.
Sample Test Kit:	Use HIV single mailing or courier or HIV multiple mailing or courier kits.
Sample Collection:	Use an OraSure oral specimen collection device. Specimens received with less than the minimum required volume are rejected. Submission must include the bar-coded label as the only identifier. The laboratory will not test any specimen received with a client's name, birth date or other personal identifiers.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple

Patient preparation:	packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances. Informed consent must be obtained.
Comments:	Additional information required: Specimen collection date must appear on the sample submission form.
Test Name:	<u>HIV-1 Antibody Screen, Serum</u>
Lab and Telephone #:	HIV Laboratory (617) 983-6388 or (617) 983-6389
Use of Test:	Antibody status to HIV-1, a causative agent of AIDS, for approved counseling and testing sites or for reference testing and epidemiological studies.
Test Includes:	Qualitative testing by a commercial enzyme immunoassay EIA procedure. This EIA procedure has the ability to detect antibody to HIV-1. HIV-1 Western Blot is performed if EIA is repeatedly reactive. If HIV-1 Western Blot is non-reactive or indeterminate, HIV-2 testing will be performed.
Limitations:	Only approved sites may submit specimens. Does not determine presence of HIV virus. Test may be non-reactive for several weeks following exposure or in final stages of AIDS.
Contraindications:	Must comply with Massachusetts General Laws regarding HIV testing (Chapter 111, section 70 f).
Availability:	Monday through Friday, 9:00am to 5:00pm.
Turnaround Time:	One week.
Sample and Volume:	Minimum of 1mL of serum or plasma.
Forms Required:	HIV Laboratory Serum Sample Submission Form.
Sample Container:	Mailing container provided by State Laboratory Institute.
Sample Test Kit:	Use HIV single mailing or courier or HIV multiple mailing or courier kits.
Sample Collection:	Routine blood draw. Serum separator tube required. No additive is necessary. Specimen must arrive centrifuged with bar-coded label as the only identifier. The laboratory will not test any specimen received with a client's name, birth date or other personal identifiers.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Patient preparation:	Informed consent must be obtained.
Comments:	Additional information required: Specimen collection date must appear on submission form.
Test Name:	<u>HIV-2 Antibody Confirmation, Serum Only</u>
Lab and Telephone #:	HIV Laboratory (617) 983-6388 or (617) 983-6389
Use of Test:	Confirmation of HIV-2 antibody screening result for approved counseling and testing sites or for reference testing and epidemiologic studies.
Test Includes:	Enzyme-linked immuno- blot (Western Blot) analysis for detection of antibody to specific viral proteins of HIV-2.

Limitations:	Only approved sites may submit specimens.
Contraindications:	Must comply with Massachusetts General Laws regarding HIV testing (Chapter 111, section 70 f). The HIV-2, Western Blot, will not be performed without repeatedly reactive HIV-2 EIA results.
Availability:	Monday through Friday, 9:00am to 5:00pm.
Turnaround Time:	One week.
Sample Volume:	Minimum of 1 mL of serum or plasma.
Forms Required:	HIV Laboratory Serum Sample Submission Form.
Sample Container:	Mailing canisters provided by State Laboratory Institute.
Sample Test Kit:	Use HIV single mailing or courier or HIV multiple mailing or courier kits.
Sample Collection:	Routine blood draw. Serum separator tube required with no additive necessary. Specimen must arrive centrifuged with bar-coded label as the only identifier. The laboratory will not test any specimen received with a client's name, birth date or other personal identifiers.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Patient Preparation:	Informed consent for HIV testing must be obtained.
Comments:	Additional information required: Specimen collection date must appear on submission form. Counselor must indicate HIV-2 risk on submission form.
Test Name:	<u>HIV-2 Antibody Screen, Serum Only</u>
Lab and Telephone #:	HIV Laboratory (617) 983-6388 or (617) 983-6389
Use of Test:	Antibody status to HIV-2, a causative agent of AIDS, for approved counseling and testing sites or for reference testing and epidemiologic studies.
Test Includes:	Qualitative testing by a commercial enzyme immunoassay EIA procedure. This EIA procedure has the ability to detect antibody to HIV-2. HIV-2 Western Blot is performed if EIA is repeatedly reactive. If HIV-1 Western Blot is non-reactive or indeterminate, HIV-2 screening will be performed.
Limitations:	Only approved sites may submit specimens. Does not determine presence of HIV virus. Test may be non-reactive for several weeks following exposure or in final stages of AIDS. (FDA approval for use with serum specimens only)
Contraindications:	Must comply with Massachusetts General Laws regarding HIV testing (Chapter 111, section 70 f).
Availability:	Monday through Friday, 9:00am to 5:00pm.
Turnaround Time:	One week.
Sample Volume:	Minimum of 1 mL of serum or plasma.
Forms Required:	HIV Laboratory Serum Sample Submission Form.
Sample Container:	Mailing canisters provided by State Laboratory Institute.
Sample Test Kit:	Use HIV single mailing or courier or HIV multiple mailing or courier kits.
Sample Collection:	Routine blood draw. Serum separator tube required with no additive necessary. Specimen must arrive centrifuged with bar-coded label as the only identifier. The laboratory will not test any specimen received with a client's name, birth date or other personal identifiers.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple

Patient preparation:

Comments:

packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances. Informed consent must be obtained.

Additional Information Required: Specimen collection date must appear on submission form. Counselor must indicate HIV-2 risk on submission form.

Test Name:

Influenza A, Rapid Test

Lab and Phone #:

Virus Isolation Laboratory (617) 983-6382

Test Includes:

Identification of specimens positive for influenza A antigen.

Availability:

Performed on Fridays or days proceeding holidays from October through March. Contact the laboratory prior to submitting samples from April to September.

Turnaround Time:

1day for preliminary positive report. Positives are confirmed by conventional culture and subtyping.

Sample:

Throat swab, nasopharyngeal swab, bronchial wash or other respiratory specimen.

Forms Required:

Influenza Requisition Form.

Sample Test Kit:

Influenza Test Kit. **Call (617) 983-6848 to order kits.**

Sample Collection:

See instructions in influenza test kit.

Shipping Requirements:

Transport to the laboratory within 24 hours on ice pack included with kit or at refrigerator temperatures. Use triple packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Note: As this procedure is not as sensitive as conventional tissue culture, specimens testing negative are not reported until conventional culture results are finalized. Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name:

Influenza Inhibition of Hemagglutination

Lab and Phone #:

Virus Isolation Laboratory (617) 983-6382

Test Includes:

Subtyping of isolates exhibiting hemadsorption.

Limitations:

Occasionally, frozen isolates testing positive off-site do not grow upon reinoculation. Isolates unable to be subtyped are tested for parainfluenza virus and/or are sent to CDC.

Availability:

As requested from October through March. Contact the laboratory prior to sending samples to the laboratory from April through September.

Turnaround Time:

2 to 7 days.

Sample:

Isolate exhibiting hemadsorption or preliminary positive immunofluorescence result.

Forms Required:

Virus Isolation Requisition Form.

Sample Test Kit:

Provided by user.

Sample Collection:

Call Laboratory for sample collection instructions.

Shipping Requirements: If frozen, transport to lab on dry ice. If tube culture is to be submitted, call the laboratory prior to shipment. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name: Influenza Rapid Culture
Lab and Phone #: **Virus Isolation Laboratory (617) 983-6382**
Test Includes: Isolation and typing of influenza virus by shell vials.
Availability: As requested from October through March. Contact the laboratory prior to sending samples from April through September.
Turnaround Time: 1 to 2 days for preliminary positive report. Positives are confirmed by conventional culture and subtyping.
Sample: Throat swab, nasopharyngeal swab, bronchial wash or other respiratory specimen.
Forms Required: Influenza Requisition Form.
Sample Test Kit Influenza Test Kit. **Call (617) 983-6848 to order kits.**
Sample Collection: See instructions in influenza test kit.
Shipping Requirements: Transport to the laboratory within 24 hours on ice pack included with kit or at refrigerator temperatures. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments: **Note:** As this procedure is not as sensitive as conventional tissue culture, specimens testing negative are not reported until conventional culture results are finalized. Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name: Influenza Type A Antibody
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of recent or current infection with this agent.
Significant Result: Seroconversion or four-fold increase in titer.
Test Includes: Quantitative complement fixation testing for IgG antibody to influenza, type A.
Limitations: Anticomplementary activity may interfere.
Availability: As requested.
Turnaround Time: 2 to 7 days upon receipt of convalescent serum.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent serum. See instructions in test kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer

container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional tests recommended: Influenza Culture.

Test Name:	<u>Influenza Type B Antibody</u>
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	Serodiagnosis of recent or current infection with this agent.
Test Includes:	Quantitative complement fixation testing for IgG antibody to influenza, type B.
Significant Result:	Seroconversion or four-fold increase in titer.
Limitations:	Anticomplementary activity may interfere.
Availability:	As requested.
Turnaround Time:	2 to 7 days upon receipt of convalescent serum.
Sample and Volume:	3 mL of serum.
Forms Required:	Virus Serology Requisition Form.
Sample Test Kit:	Virus Serology Kit.
Sample Collection:	Acute and convalescent serum. See instructions for collection in test kit.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments:	Additional tests recommended: Influenza Culture.

Test Name:	<u>Influenza/Parainfluenza Conventional Culture</u>
Lab and Phone #:	Virus Isolation Laboratory (617) 983-6382
Test Includes:	Isolation of influenza virus utilizing Hemadsorption assay.
Availability:	As requested from October through March. Contact the laboratory prior to sending samples from April through September.
Turnaround Time:	4 to 12 days for a positive report. 10-12 days for negative report.
Sample:	Throat swab, nasopharyngeal swab, bronchial wash or other respiratory specimens.
Forms Required:	Influenza Requisition Form.
Sample Test Kit:	Influenza Test Kit. Call (617) 983-6848 to order kits.
Sample Collection:	See instructions included in test kit.
Shipping Requirements:	Transport to the laboratory within 24 hours on ice pack included with kit or at refrigerator temperatures. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments:	Note: Culture for additional viruses may be performed at the discretion of the laboratory. Hemadsorption positive isolates are tested by the inhibition of hemagglutination test for confirmation of influenza and subtyping.

Test Name: Lead, Dust Wipes (Samples submitted by licensed Lead Inspectors only)
Lab and Phone #: **Analytical Chemistry Laboratory (617) 983-6654**
Use of Test: To determine the efficacy of and monitor post abatement clean up.
Method of Analysis: Acid extraction followed by flame atomic absorption spectroscopy.
Allowable Limits: Floor 200 µg/ft²,
Window Sill 500 µg/ft²,
Window Well 800 µg/ft²
Turnaround Time: 3 to 5 working days
Forms Required: Dust Sample Submission Form, complete with documentation of provider, occupant of dwelling, and source of samples.
Sample Container: 50 mL, polypropylene, conical tubes.
Sample Test Kit: Call the laboratory to obtain sample collection kit and instructions prior to sample collection.
Shipping Requirements: Ship in an appropriate box or padded mailer. Package, mark and label properly to avoid sample loss during delivery.
Fee: \$ 60 per sample kit of 4. Fee waived for families of lead poisoned children.

Test Name: Lead, Paint Chips
Lab and Phone #: **Analytical Chemistry Laboratory (617) 983-6654**
Use of Test: To monitor paint as possible source of lead exposure.
Method of Analysis: Microwave digestion followed by flame atomic absorption spectroscopy.
Allowable Limits: Lead-based paints for interior application must contain less than 0.5% by weight lead.
Turnaround Time: 3 to 10 working days.
Sample Volume: 1.0 gram
Forms Required: Paint Sample Submission Form, complete with documentation of provider, occupant of dwelling, and source of samples. Call laboratory for copy of form.
Container: Submit in clean, zip-lock plastic bag.
Sample Collection: Call the laboratory for sampling instructions prior to collection.
Shipping Requirements: Use a padded mailer.
Fee: \$ 10 per sample. Fee waived for families of lead poisoned children.

Test Name: Lead, Pottery
Lab and Phone #: **Analytical Chemistry Laboratory (617) 983-6654**
Use of Test: To test for potential of lead toxicity from pottery or dinnerware used for food preparation or eating purposes. Items sent for analysis must be intact and not chipped, cracked or broken.
Method of Analysis: Acid extraction followed by flame atomic absorption spectroscopy.
Test Includes: Dinnerware, glassware, mugs, cups and other eating and drinking utensils.
Allowable Limits: All pottery, dinnerware and glassware must contain less than 2 ppm leachable lead under the Massachusetts Lead Law.
Turnaround Time: 5 to 10 working days
Forms Required: Miscellaneous Sample Submission Form with complete documentation of provider and manufacturer as well as a description of and source of the item.
Call the laboratory for a copy of the form.
Shipping Requirements: Wrap all items well with bubble wrap or paper before shipping. Mark "Fragile,

Hand Cancel" or Handle with Care" on the outside of the package. The laboratory is not responsible for broken or damaged items.

Fee: \$ 60 /sample. Fee waived for the families of lead poisoned children.

Test Name: **Lead, Soil**
Lab and Phone #: **Analytical Chemistry Laboratory (617) 983-6654**
Use of Test: To monitor soil as a possible source of lead toxicity.
Method of Analysis: Microwave digestion followed by flame atomic absorption spectroscopy.
Allowable Limit: EPA Guidelines, 400 mg/kg
Turnaround Time: 3 to 10 working days.
Sample Volume: One cup or more of a composite soil sample.
Forms Required: Soil Sample Submission Form complete with documentation of provider, occupant of dwelling and source of samples. Call the laboratory for a copy of the form.
Sample Container: Submit samples in individual clean, zip-lock plastic bags.
Sample Collection: Call laboratory for sampling instructions prior to collection.
Shipping Requirements: Ship to the laboratory in an appropriate sized durable box. Mark, label and secure the box properly to avoid sample loss during delivery.
Fee: \$ 10/sample. Fee waived for families of lead poisoned children.

Test Name: **Lead, Urine** (for research purposes only).
Lab and Phone #: **Childhood Lead Screening Laboratory (617) 983-6650**
Use of Test: To monitor lead excretion.
Method of Analysis: Acid extraction followed by graphite furnace atomic absorption spectroscopy.
Acceptable Range: 1 to 13 µg/L
Turnaround Time: 10 working days.
Sample Volume: 100 mL
Sampling Instructions: Call laboratory for sampling instructions and container.
Forms Required: Childhood Lead Screening Sample Submission Form.
Sample Container: Trace metal free urine specimen collection container.
Sample Collection: First void sample or an aliquot of a 24-hour urine collection. Measure and record the volume on required laboratory form.
Shipping Requirements: Keep sample refrigerated before mailing. Sample must be submitted to the laboratory for preservation within 24 hours of collection. Secure container to avoid sample loss. Package and label outer packing properly to ensure safe delivery.
Comments: **Additional test recommended:** Blood Lead.

Test Name: **Lead, Water**
Lab and Phone: **Analytical Chemistry Laboratory (617) 983-6654**
Use of Test: To measure lead in drinking water as a possible source of exposure.
Method of Analysis: Acid extraction followed by graphite furnace atomic absorption spectroscopy.
Allowable Limits: 15 micrograms per liter (ug/L) or less.
Turnaround Time: 7 to 10 days
Sample Volume: Three 1000-mL compliance samples, collected over time, (standing, two minutes running and five minutes running).

Forms Required:	Drinking Water Submission Form containing documentation of provider, occupant, water source, and exact location of tap. Call the laboratory for a copy of the form.
Sample Test Kit:	EPA approved containers packaged for chain-of-custody supplied by laboratory.
Sample Collection:	See complete instructions in test kit for collecting compliance samples.
Shipping Requirements:	Secure covers to containers to prevent any leakage. Ship to laboratory in carton provided within 10 days of collection. Carton must have labels of orientation and handling to ensure safe delivery.
Fee:	\$ 40.00 per kit. Each kit includes 3 containers for collection of compliance samples. Shipping fee, if required is \$2.50. Testing fees are waived for families of lead poisoned children.
Test Name:	<u>Lead, Whole Blood, Capillary Fingerstick</u>
Lab and Phone #:	Childhood Lead Screening Laboratory (617) 983-6665
Use of Test:	Identification and monitoring of children with elevated lead body burden.
Method of Analysis:	Graphite furnace atomic absorption spectroscopy.
Acceptable Range:	Children 0 to 9µg/dL
Turnaround Time:	2 working days.
Sample and Volume:	200 µL whole blood; collect with EDTA, heparin is also acceptable.
Sampling Instructions:	Call laboratory for sampling instructions.
Forms Required:	Childhood Lead Screening Sample Submission Form.
Sample Collection Kit:	Microcuvette capillary collection system, amber colored, coated with EDTA. Call laboratory to order supplies.
Shipping Requirements:	Keep samples refrigerated before mailing. Avoid exposing samples to extreme temperatures during shipping. Use double packaging system and an overpack for transporting clinical diagnostic specimens by courier. Use the triple packaging system when sending clinical blood samples by USPS. Do not mail samples in paper envelopes. Use biohazard stickers on primary receptacles and outer packings. Label outer packings "Diagnostic Specimen Enclosed" as required by USPS and CDC.
Comments:	See the Centers for Disease Control guidelines for the interpretation of Lead (Pb) and Zinc Protoporphyrin (ZnPP) blood levels at http://cdc.gov/nceh/lead/Publications
Test Name:	<u>Lead, Whole Blood, Venous Blood</u>
Lab and Phone #:	Childhood Lead Screening Laboratory (617) 983-6665
Use of Test:	Identification and monitoring of children with elevated lead body burden.
Method of Analysis:	Graphite furnace atomic absorption spectroscopy.
Acceptable Range:	Children 0 to 9µg/dL; Adults 0 to 40 ug/dL
Turnaround Time:	2 working days.
Sample and Volume:	2 mL of whole blood collected in EDTA, (lavender top tube). Although heparin, (green stopped tube) is acceptable, EDTA is the preferred anticoagulant.
Sampling Instructions:	Call the laboratory for sampling instructions.
Forms Required:	Childhood Lead Screening Sample Submission Form.
Sample Container:	2 mL (Pediatric), Vacutainer tube, plastic, lavender top (containing EDTA).

Shipping Requirements: Keep samples refrigerated before mailing. Avoid exposing samples to extreme temperatures during shipping. Use double packaging system for transporting clinical diagnostic specimens by courier. Use triple packaging system when sending clinical blood samples by USPS. Use biohazard stickers on primary receptacles and outer packings. Label outer packings “Diagnostic Specimen Enclosed” as required by USPS and CDC.

Comments: See the Centers for Disease Control guidelines for the interpretation of Lead and Zinc Protoporphyrin blood levels at (<http://cdc.gov/nceh/lead/Publications>)

Test Name: *Legionella Culture*
Lab and Phone #: **Bacteriology Reference Laboratory (617) 983-6607**
Use of Test: To confirm a diagnosis of Legionnaire’s Disease in the acute phase of illness.
Test Includes: Subculture identification, confirmation, and serogrouping as well as isolation and identification of *Legionella* spp. from lung tissue, pleural fluid, transtracheal aspirate, and lower respiratory secretions (sputum bronchial wash etc.).
Limitations: Sputum, transtracheal aspirate and lung tissue have the highest yield. Pleural fluid has the lowest yield. Soluble antigen studies on all specimens are not offered.
Availability: Monday through Friday.
Turnaround Time: 4 to 10 days.
Sample: Lung tissue, pleural fluid, transtracheal aspirate, and lower respiratory secretions (sputum bronchial wash etc.).
Forms Required: Legionella Requisition Form.
Sample Test Kit: Legionella Transport Kit, available on request at (617) 983-6607 or (617) 983-6640.
Coolant provided by the user.
Sample Collection: Collect pea-sized piece of tissue and 5 to 30 mL of secretions. Specimens should be held at 4-8° C and should not be allowed to dry out. Add a small amount of sterile distilled water to lung tissue if necessary. Do not use sterile saline for specimen collections as *Legionella* spp. are inhibited by saline.
Shipping Requirements: Same day transport by courier is recommended. If same day transport is not possible, freeze the specimen and send it overnight priority mail in a triple packaged system with dry ice.
Comments: **Additional tests recommended:** *Legionella* Serology.

Test Name: *Legionella Referred Culture*
See *Legionella* Culture.

Test Name: *Legionella Serology*
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: To support a diagnosis of Legionnaires disease retrospectively during the convalescent phase of illness.
Test Includes: Quantitative IFA testing for IgG antibody to Legionella.

Significant Result:	Seroconversion or a four-fold rise in titer or a single serum less than or equal to 256.
Limitations:	Varying background levels of antibody in the general population make it difficult to support a diagnosis based on a single serum titer.
Availability:	As requested.
Turnaround Time:	2 to 5 days upon receipt of convalescent serum.
Sample and Volume:	3 mL of serum, acute and convalescent.
Forms Required:	Virus Serology Requisition Form.
Sample Test Kit:	Virus Serology Kit. See instructions for sample collection in sample test kit.
Sample Collection:	Routine blood draw, no preservatives. Requisition must state date of collection and onset of illness. Collect acute during first week of illness and convalescent 3-6 weeks post-onset
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use the triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments:	Additional tests recommended: <i>Legionella</i> Culture.
Test Name:	<u>Leishmaniasis Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u>Leptospirosis Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u>Listeria Isolation, Food</u>
Lab and Phone #:	Bacteriology Food Laboratory (617) 983-6610
Use of Test:	To support epidemiologic evidence implicating a food as a possible source of illness.
Special Instructions:	Food samples must be submitted through local or state public health agencies and implicated in an outbreak (1 or more ill consumers). The laboratory should be notified by phone prior to submission. If the sample is a commercial food or if the suspect agent is chemical, the laboratory investigation is handled by the SLI Environmental Chemistry Laboratory or the FDA.
Test Includes:	Enrichment and culture of sample for <i>Listeria</i> species, Organoleptics.
Limitations:	Foods will be examined for <i>Listeria</i> only if the clinical and epidemiologic information is compatible with <i>Listeria</i> foodborne disease.
Availability:	Monday through Friday.
Turnaround Time:	3 to 12 days.
Sample and Volume:	More than 200 grams of implicated food.
Forms Required:	Sample Submission Forms are obtainable through the Food Microbiology Laboratory (617) 983-6610, MA Division of Food and Drugs, Food Protection Program (617) 983-6712, and the local Board of Health.

Sample Container:	Original sample container as submitted by inspector or other sterile leak proof container.
Sample Collection:	Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Label with source (name of establishment or individual), type of sample, time and date of collection along with other pertinent information.
Shipping Requirements:	Transport or ship samples on ice in appropriate packings.
Test Name:	<u>Listeria monocytogenes Culture</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	Epidemiological studies.
Test Includes:	Confirmation of isolate. Additional studies (PFGE) may be performed.
Availability:	Monday through Friday.
Turnaround Time:	3 to 7 days.
Sample:	Pure, actively growing culture on agar slant.
Forms Required:	Bacteriology Requisition Form.
Shipping Requirements:	Use UN approved packagings. Pack, mark, label and ship as an infectious substance.
Test Name:	<u>Lyme Disease, Western Blot IgM and IgG</u>
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	To confirm a diagnosis of Lyme disease as a follow-up positive to a screening assay.
Test Includes:	Separate confirmatory Western Blot tests for IgM and IgG antibody to <i>Borrelia burgdorferi</i> .
Significant Result:	IgM greater than or equal to 2 significant bands. IgG greater than or equal to 5 significant bands.
Limitations:	Western Blot testing is recommended only on patients who have positive EIA or IFA test results. Western Blot testing should not be performed as screening procedure for the general population. The predictive accuracy of a positive or negative Western Blot result depends on the likelihood of Lyme disease being present. The continued presence or absence of antibodies cannot be used to determine the success or failure of therapy. IgM serologic positivity should be considered only if specimen was obtained less than 30 days post disease onset.
Availability:	Weekly.
Turnaround Time:	2 to 7 days.
Sample and Volume:	3 mL of serum. See instructions in test kit.
Forms Required:	Lyme Serology Requisition Form. Call the Laboratory for copies of form.
Sample Test Kit:	Virus Serology Kit.
Sample Collection:	Routine blood draw, use no preservatives.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use the triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments:	Reactive screening results required for Immunoblot to be performed. An IgG

blot is considered positive if five of the following ten bands are present: 18, 23 (OspC), 28, 30, 39, 41 (Flagellin), 45, 58, 66 and 93kDa. An IgM blot is considered positive if two of the following three bands are present: 23 (OspC), 39, and 41 (flagellin) kDa.

Test Name:	<u>Lymphocytic Choriomeningitis (LCM) Virus Culture and Serology</u>
Lab and Phone #:	Virus Isolation Laboratory (617) 983-6382 Virus Serology Laboratory (617) 983-6396
Special Instructions:	PLEASE CONTACT LABORATORY PRIOR TO SHIPPING SPECIMENS. Samples are sent to CDC. This is a CDC referral test requiring at least 0.5 ml of cerebrospinal fluid and 3 mL of serum. The CDC will perform antibody testing on the serum and cerebrospinal fluid. Based on these results, CDC may elect to perform LCM culture testing or may determine that LCM culture testing is not warranted. Clinical information, including any known rodent exposure is required. Alternatively, LCM serology, requiring only serum, may be requested (see "CDC Serology - Viral/Rickettsial").
Test Includes:	LCM culture and antibody testing performed by the CDC at their discretion following antibody testing.
Turnaround Time:	Varies with referral.
Sample and Volume:	Minimum of 0.5 mL of cerebrospinal fluid with 3 mL of serum (required). Brain tissue may be acceptable following CDC consultation.
Forms Required:	Virus Isolation or Virus Serology Requisition Form and CDC Requisition Form.
Sample Test Kit:	Virus Serology Kit.
Sample Collection:	See instructions provided in test kit.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name:	<u>Malaria, Direct Smear</u> Shipped to CDC with prior arrangement.
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	Diagnosis of malaria or speciation of an etiologic agent.
Limitations:	Proper collection and staining.
Turnaround Time:	2 to 4 weeks.
Sample:	Thick and thin blood smears.
Forms Required:	CDC Requisition Form.
Sample Container:	Provided by user.
Shipping Requirements:	Ship in a UN approved package for Class 6.2 infectious substances. Pack, mark, label and ship as an infectious substance.

Test Name: Malaria Serology
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: Measles Antibody
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Confirmation of measles infection.
Test Includes: Quantitative IgG antibody complement fixation test for measles.
Significant Result: Seroconversion or four-fold increase in titer.
Limitations: Cannot distinguish between antibody produced in response to vaccination and antibody produced in response to wild strain measles infection.
Anticomplementary activity may interfere.
Availability: As requested.
Turnaround Time: 2 to 7 days upon receipt of convalescent serum.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent serum. See instructions in test kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container “Clinical Specimen” as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments: **Additional tests recommended:** Use measles HI and IgM antibody for early diagnosis on acute serum specimen. Parvovirus and Rubella antibody testing may be necessary for differential diagnosis.

Test Name: Measles IgM Antibody
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Early diagnosis of measles infection.
Test Includes: Measles IgM Capture EIA.
Significant Result: Positive IgM indicates current or recent measles infection. Negative IgM-Positive Total Ab (see Measles HI test) indicates probable non-measles rash. Negative IgM-Negative Total Ab indicates probable non-measles rash or sample collected too early, convalescent specimen should be submitted to rule out measles infection.
Limitations: IgM may be negative if the specimen is collected prior to the appearance or close to onset of the rash. Cannot distinguish between antibody produced in response to vaccine versus wild strain measles.
Availability: As requested.
Turnaround Time: 1 to 3 days.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute serum collected 3 to 7 days after appearance of rash. See instructions in kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple

packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional tests recommended: Contact Epidemiology at (617) 983-6800 to report all suspect measles cases. Parvovirus and Rubella antibody testing may be necessary for differential diagnosis.

Test Name:

Measles Total Antibody (IgM and IgG)

Lab and Phone #:

Virus Serology Laboratory (617) 983-6396

Use of Test:

Confirmation of measles infection.

Test Includes:

Testing for total measles antibody by inhibition of hemagglutination.

Significant Result:

Seroconversion or four-fold rise in titer.

Limitations:

Cannot distinguish between antibody produced in response to vaccination and antibody produced in response to wild strain measles infection.

Availability:

As requested.

Turnaround Time:

2 to 7 days.

Sample and Volume:

3 mL of serum.

Forms Required:

Virus Serology Requisition Form.

Sample Test Kit:

Virus Serology Kit.

Sample Collection:

Acute and possibly convalescent serum. See instructions in test kit.

Shipping Requirements:

Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional tests recommended: Use measles IgM antibody for early diagnosis on acute serum specimen. Epidemiology (617) 983-6800 should be contacted for all suspect measles cases. Parvovirus and Rubella antibody testing may be necessary for differential diagnosis.

Test Name:

Measles Virus Culture

Lab and Phone #:

Virus Isolation Laboratory (617) 983-6382

Limitations:

Measles virus is rarely isolated from clinical specimens. IgM serology is the recommended test for measles diagnosis.

Availability:

As requested.

Turnaround Time:

21 days for negative report. Positive reports are available in less time.

Sample:

Throat and/or nasopharyngeal swab (combined specimens preferred), urine.

Forms Required:

Virus Isolation Requisition Form.

Sample Test Kit:

Provided by user.

Sample Collection:

Call the laboratory for sample collection instructions.

Shipping Requirements:

Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the

Comments:

container according to DOT and/or USPS regulations for infectious substances.
Additional tests recommended: IgM serology is the recommended test for measles diagnosis. Parvovirus and Rubella antibody testing may be necessary for differential diagnosis. Epidemiology (617) 983-6800 should be contacted for all suspect measles cases.
Note: Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name: Mercury, Urine (for research purposes only).
Lab and Phone #: **Analytical Chemistry Laboratory (617) 983-6653**
Use of Test: To measure acute mercury exposure.
Method of Analysis: Extraction followed by flow injection atomic spectroscopy.
Normal Range: 5 ug/g creatinine
Toxic Concentration: >35 ug/grams creatinine
Turnaround Time: 10 working days.
Sample Volume: 100 mL
Sampling Instructions: Call laboratory for sampling instructions and container.
Forms Required: Proper documentation of provider, patient and sample source.
Container: Trace metal free urine specimen collection container.
Collection: First void sample or an aliquot of 24-hour collection. Measure and record the volume on the required laboratory form.
Shipping Requirements: Sample must be submitted to the laboratory for preservation within 24 hours of collection. Secure container to avoid sample loss. Package and label properly to ensure safe delivery.
Comments: All trace metal levels in urine are corrected for creatinine.

Test Name: Mucormycosis Serology
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: Mumps Antibody
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of recent infection with this agent
Test Includes: Quantitative IgG antibody complement fixation testing for mumps.
Significant Result: Seroconversion or four-fold increase in titer.
Limitations: May cause heterotypic antibody rise to parainfluenza type 2. Anticomplementary activity may interfere.
Availability: As required.
Turnaround Time: 2 to 7 days upon receipt of convalescent serum.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent serum. See instructions in test kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container “Clinical Specimen” as appropriate. If the sample contains a known

Comments:

pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances. **Additional tests recommended:** Mumps-IFA is the preferred diagnostic test. Epidemiology (617) 983-6800 should be contacted for all suspect mumps cases. Adenovirus and parainfluenza may cause similar symptoms. Testing for non-mumps, causes of parotid pain, or swelling should also be considered. This may include testing for coxsackie, echo, parainfluenza, influenza A, herpes simplex, herpes zoster virus and *s. aureus*.

Test Name:

Lab and Phone #:

Mumps Culture

Virus Isolation Laboratory (617) 983-6382

Availability:

As requested.

Turnaround Time:

5 to 15 days.

Sample:

Saliva, throat swab, urine, cerebrospinal fluid, and tissue.

Forms Required:

Virus Isolation Requisition Form.

Sample Test Kit:

Virus Isolation Kit.

Sample Collection:

Call the laboratory for sample collection instructions.

Shipping Requirements:

Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional Tests Recommended: Mumps serology testing is also available. Epidemiology (617) 983-6800 should be contacted for all suspect mumps cases. **Note:** Culture for additional viruses may be performed at the discretion of the laboratory.

Test Name:

Lab and Phone #:

Mumps IgG IFA

Virus Serology Laboratory (617) 983-6396

Use of Test:

Serodiagnosis of recent infection.

Significant Result:

Seroconversion or four-fold increase in titer.

Availability:

As requested.

Turnaround Time:

2 to 5 days upon receipt of convalescent serum.

Sample and Volume:

3 mL of serum.

Forms Required:

Virus Serology Requisition Form.

Sample Test Kit:

Virus Serology Kit.

Sample Collection:

Acute and convalescent serum. See instructions in test kit.

Shipping Requirements:

Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional tests recommended: Mumps IgM. Epidemiology (617) 983-6800 should be contacted for all suspect mumps cases. Adenovirus and parainfluenza

may cause similar symptoms. Testing for non-mumps causes of parotid pain or swelling should also be considered. This may include testing for coxsackie, echo, parainfluenza, influenza A, herpes simplex, herpes zoster virus and *s. aureus*.

Test Name:	<u>Mumps IgM and IgG EIA</u>
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	Early diagnosis of mumps infection.
Test Includes:	Mumps IgM and IgG EIA performed at CDC.
Significant Result:	Positive IgM indicates probable current or recent mumps infection. Negative IgM and positive or negative IgG indicates probable non-mumps cause or possibility that the specimen was collected too early.
Limitations:	(1) 30% of primary mumps may be sub-clinical. (2) Mumps infection can occur without parotitis. (3) Parotid swelling may have other viral/bacterial causes (Coxsackie, Echo, Parainfluenza, Influenza A, Herpes Simplex and Zoster, and <i>S. aureus</i>). (4) Parotid pain or swelling may have a non-infectious cause.
Availability:	Sent per as needed.
Turnaround Time:	Unknown.
Sample and Volume:	3 mL of serum.
Forms Required:	Virus Serology or CDC Requisition Form.
Sample Test Kit:	Virus Serology Kit.
Sample Collection:	Acute serum collected 2 to 14 days post onset. Convalescent, if needed, 2 to 3 weeks later. See instructions in test kit.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments:	Additional tests recommended: Mumps culture. Epidemiology (617) 983-6800 should be contacted for all suspect mumps cases.

Test Name:	<u>Murine Typhus Antibody</u> See Rickettsia Antibody Panel.
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Test Name:	<u>Mycobacteria spp. Stock Culture</u>
Lab and Phone #:	Mycobacteriology Laboratory (617) 983-6381
Use of test:	Cultures may be used for quality control, teaching, research or for reference purposes.
Special Instructions:	Please call the laboratory for instructions.
Test Includes:	Pure culture of most of the Mycobacteria isolated from clinical specimens.
Limitations:	Limited to organisms available.
Availability:	Monday through Friday.
Turnaround Time:	2 weeks.
Forms Required:	This non-routine request is not on the TB Laboratory Requisition Form.
Sample Test Kit:	TB Culture Kit.
Shipping Requirements:	If risk group 2,3 or 4 organism, ship as infectious substance using triple

packaging system. Pack, mark and label appropriately to meet USPS and DOT regulations.

Test Name: **Mycobacteriology CDC Identification**
See CDC Culture Identification, Mycobacteriology.

Test Name: **Mycobacteriology, (MAC) Identification by Accuprobe**
Lab and Phone #: **Mycobacteriology Laboratory (617) 983-6381**
Use of test: Identification of *M. avium* complex isolates.
Test Includes: Confirmation or identification of *M. avium* complex by Genprobe Accuprobe.
Availability: Tuesday through Friday.
Turnaround Time: 1 day for grown isolates and up to 1 month if isolation is necessary.
Sample and Volume: Positive AFB culture, either solid or liquid is acceptable.
Forms Required: TB Laboratory Requisition Form.
Sample Container: TB Culture Kit.
Shipping Requirements: Use double packaging system for Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate.

Test Name: **Mycobacteriology (MTD) Mycobacterium Tuberculosis Direct**
Lab and Phone #: **Mycobacteriology Laboratory (617) 983-6381**
Use of Test: To determine the in vitro diagnostic detection of *Mycobacterium tuberculosis* complex rRNA in acid-fast (AFB) smear positive concentrated sediments prepared from sputum, bronchial specimens or tracheal aspirates. Other types of specimens are tested by request on a research basis.
Special Instructions: Contact the laboratory before submitting specimen to arrange for testing. Patient specimens must be decontaminated within 24 hours after collection. Sediments must be analyzed within 72 hours after decontamination.
Limitations: Only for the detection of members of the *Mycobacterium tuberculosis* complex using sediments prepared following the NALC-NaOH and NaOH procedures recommended by CDC. MTD is specific for, but does not differentiate among, members of the *M. tuberculosis* complex. A negative test does not exclude the possibility of isolating an *Mycobacterium tuberculosis* complex organism from the specimen. MTD should always be performed in conjunction with mycobacterial culture. This test is for first time, smear positive patients that have not had a previous *Mycobacterium tuberculosis* complex infection.
Availability: Monday through Friday.
Turnaround Time: 24 to 48 hours.
Sample: Patient specimen or sediment of a sputum, bronchial specimen or tracheal aspirate. Other types of specimens are tested by request on a research basis.
Forms Required: TB Laboratory Requisition Form.
Sample Test Kit: TB Culture Kit.
Comments: Additional tests recommended: Mycobacteriology culture.
Shipping Requirements: Must use the triple packaging system when pathogens are known or suspected when shipping by U. S Mail or Courier Service. Label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name: **Mycobacteriology (TB) Identification (Referred Culture)**
Lab and Phone #: **Mycobacteriology Laboratory (617) 983-6381**
Use of Test: To determine the species of mycobacteria.
Test Includes: Confirmation or identification to the complex or species level by Genprobe Accuprobe, and/or biochemical testing.
Limitations: Pure isolate. Mixed or contaminated cultures may take longer and identification may not be possible. Liquid cultures are acceptable.
Availability: Tuesday through Friday.
Turnaround Time: 1 day to one month.
Sample: Pure isolate.
Form Required: TB Laboratory Requisition Form.
Sample Test Kit: TB Culture Kit.
Shipping Requirements: Use the double packaging system for delivery by a Courier Service. Use the triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If pathogens are known or suspected, use a triple packaging system when shipping by U. S Mail or Courier Service. Label and mark the outside of the container according to USPS and/or DOT regulations for infectious substances. A shipper's declaration is required for infectious substances.

Test Name: **Mycobacteriology (TB) Smear**
Lab and Phone #: **Mycobacteriology Laboratory (617) 983-6381**
Use of Test: Presumptive diagnosis of mycobacterial disease; rapid identification of most infectious cases, e.g. those that are smear positive; to follow progress of tuberculosis patient on chemotherapy; to evaluate if patient may be discharged from hospital or return to gainful employment. The laboratory strongly recommends this test be done in conjunction with mycobacterial culture.
Test Includes: Acid Fast Smear only.
Normal Range: No AFB found.
Limitations: Much less sensitive than culture for detecting mycobacteria.
Availability: Monday through Friday.
Turnaround Time: 24 hours.
Sample and Volume: Prepared slide or 1 to 3 mL of specimen.
Forms Required: TB Laboratory Requisition Form.
Sample Test Kit: TB Culture Kit.
Shipping Requirements: Use the double packaging system for Courier Service. Use the triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. The triple packaging system must be used if pathogens are known or suspected when shipping by U. S Mail or Courier Service. Label and mark the outside of container according to USPS and/or DOT regulations for infectious substances. A shipper's declaration is required for the postal service.
Comments: **Additional tests recommended:** Mycobacteria Culture.

Test Name:	<u>Mycobacteriology (TB) Smear and Culture (AFB)</u>
Lab and Phone:	Mycobacteriology Laboratory (617) 983-6381
Use of Test:	Determine presence or absence of <i>mycobacteria</i> ; if present identify the species using Genprobe Accuprobe or biochemical testing.
Test Includes:	Acid Fast Smear and Culture.
Availability:	Monday through Friday.
Turnaround Time:	Smear 24 hours, culture 1 to 8 weeks.
Patient Preparation:	Collect specimens prior to chemotherapy. Sterile preparation of site if applicable.
Sample and Volume:	<u>•Body Fluids (containing blood)</u> Volume: 10 mL Container: Blood collection tube. TB Culture Kit <u>•Body Fluids (not containing blood)</u> Volume: 10 to 15 mL Container: TB Culture Kit <u>•Blood</u> Volume: 10 mL Container: Blood collection tube. TB Culture Kit <u>•Bone Marrow</u> Volume: 1 to 10 mL Container: Blood collection tube. TB Culture Kit <u>•Cerebrospinal Fluid</u> Volume: ≥ 2 mL Limitations: Cerebrospinal fluid submitted in CSF collection tubes with attached caps usually leak in transport. Transfer specimen to container provided in TB Culture Kit. <u>•Gastric Lavage</u> Volume: ≥ 5 to 10 mL Container: TB Culture Kit Limitations: Specimens that have not been neutralized, (buffered) are unacceptable. Special Instructions: Collect fasting specimen soon after patient awakens in order to obtain sputum swallowed during sleep. Collect 3 specimens on different days. Neutralize immediately, submit on day of collection and indicate on requisition form that the specimen has been neutralized. <u>•Skin Lesion Material</u> Volume: 1 cubic centimeter Container: TB Culture Kit. Limitations: Do not wrap in gauze. Do not freeze. 1 to 2 mL of sterile saline may be used to keep tissue moist. Swabs are not recommended. Negative results obtained from specimens submitted on swabs are not reliable. <u>•Sputum</u> Volume: 5 to 10 mL Container: TB Culture Kit.

Limitations: 24-hour pooled specimens and saliva are unacceptable specimens.

Special Instructions: Collect a series of 3 to 5 specimens collected on different days over a 7 day period. Submit on day of collection.

•**Stool**

Volume: ≥ 1 g

Container: TB Culture Kit. Call for prior approval.

•**Tissue Biopsy**

Volume: 1 cubic centimeter

Container: TB Culture Kit.

Limitation: Do not wrap in gauze. Do not freeze. 1 to 2 mL of sterile saline may be used to keep tissue moist. Swabs are not recommended. Negative results obtained from specimens submitted on swabs are not reliable.

•**Urine**

Volume: 20 mL

Container: TB Culture Kit.

Limitations: 24-hour pooled specimens are unacceptable.

Special Instructions: Collect a series of 3 to 5 specimens collected on different days. Collect first morning clear voided midstream specimen. Submit sample to the laboratory on the day of collection.

Form Required:

TB Laboratory Requisition Form.

Shipping Requirements:

Apply basic double packaging system for Courier Service. Apply a biohazard label and mark the outer container "Clinical Specimen". Use the triple packaging system when shipping by U. S Mail. Label and mark the outside of the container according to USPS and/or DOT. Samples from patients with known TB should be packaged and shipped as infectious substances. A shipper's declaration is required for the postal service. Transport samples to the laboratory as soon as possible. Refrigerate if a delay in submitting is anticipated.

Comments:

Drug susceptibility testing is performed on all *M. tuberculosis* complex isolates.

Test Name:

Mycobacteriology (TB) Susceptibility

Lab and Phone #:

Mycobacteriology Laboratory (617) 983-6381

Use of Test:

To determine the in vitro susceptibility of mycobacteria to the above listed antimicrobial agents.

Test Includes:

Proportion method of testing mycobacterial isolates against Streptomycin, Isoniazid, Ethambutol, Rifampin, Ethionamide, Capreomycin, Cycloserine, Ciprofloxacin and Kanamycin.

Normal Range:

Pattern of susceptibility varies based on isolate.

Limitations:

Pure isolate, only done on pathogens.

Availability:

Monday through Friday.

Turnaround Time:

Primary specimens usually 7-8 weeks. Referred cultures usually 3 to 4 weeks.

Sample:

Primary specimen or mycobacterial isolate.

Forms Required:

TB Laboratory Requisition Form.

Sample Test Kit:

TB Culture Kit.

Shipping Requirements:

Use basic double packaging system for Courier Service. Use the triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical

Specimen” as appropriate. Samples from patients with known TB should be packaged and shipped as infectious substances. A shipper’s declaration is required for the postal service. Transport samples to the laboratory as soon as possible.

Test Name:	<u>Mycobacteriology (TB) Susceptibility, Rapid</u>
Lab and Phone#:	Mycobacteriology Laboratory (617) 983-6381
Use of test:	To determine the in vitro susceptibility of <i>M. tuberculosis</i> complex organisms to the first line drugs listed below.
Test Includes:	Rapid radiometric susceptibility tests for TB using Bactec for Streptomycin (S), Isoniazid (I) [two concentrations], Ethambutol (E), Rifampin (R) and Pyrazinamide (PZA). The results are available 7 to 12 days after inoculation.
Normal Range:	<i>M. tuberculosis</i> complex organisms susceptible to the above antimicrobial agents.
Limitations:	Pure isolate, only done on <i>M. tuberculosis</i> complex organisms.
Availability:	Test is set up on Friday. Send positive cultures as early in the week as possible.
Turnaround Time:	One to three weeks.
Sample:	<i>M. tuberculosis</i> complex isolate.
Forms Required:	TB Laboratory Requisition Form.
Sample Test Kit:	TB Culture Kit.
Shipping Requirements:	Must use the triple packaging system if pathogens are known or suspected when shipping by U. S Mail or Courier Service. Label and mark the outside of container according to USPS and/or DOT regulations for infectious substances. A shipper’s declaration is required for the postal service.

Test Name:	<u>Mycoplasma pneumoniae Antibody</u>
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	Serodiagnosis of recent or current infection with this agent.
Test Includes:	Quantitative IgG antibody CF testing for Mycoplasma pneumoniae.
Significant Result:	Seroconversion or four-fold increase in titer.
Limitations:	Anticomplementary activity may interfere.
Availability:	As requested.
Turnaround Time:	2 to 7 days upon receipt of convalescent serum.
Sample and Volume:	3 mL of serum.
Forms Required:	Virus Serology Requisition Form.
Sample Test Kit:	Virus Serology Kit.
Sample Collection:	Acute and convalescent serum. See instructions in test kit.
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container “Clinical Specimen” as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name:	<u>Neisseria gonorrhoeae</u>
	See Gonorrhea Culture.

Test Name:	<u><i>Neisseria gonorrhoeae</i> Antimicrobial Susceptibility</u> See Gonorrhea Culture.
Test Name:	<u><i>Neisseria meningitidis</i> Culture</u>
Use of Test:	To serogroup isolate for use in treatment selection and/or epidemiological studies.
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Test Includes:	Serogrouping of <i>Neisseria meningitidis</i> .
Limitations:	Testing performed only on organisms isolated from normally sterile sites unless prior consultation is arranged.
Availability:	Monday through Friday.
Turnaround Time:	1 to 2 days.
Sample:	Pure young culture on agar slant.
Forms Required:	Bacteriology Requisition Form.
Shipping Requirements:	Use triple packaging system. If known pathogen, pack, mark, label and ship as an infectious substance. Mark "DO NOT REFRIGERATE" on outside container.
Comments:	Additional tests recommended: Prior correct identification of <i>Neisseria meningitidis</i> is required.
Test Name:	<u><i>Nocardia</i> (Culture)</u>
Lab and Phone #:	Mycobacteriology Laboratory (617) 983-6381
Use of test:	Presumptive identification of <i>Nocardia</i> and <i>Rhodococcus</i> to the genus level.
Test Includes:	Presumptive Identification of <i>Nocardia</i> and <i>Rhodococcus</i> to the genus level.
Normal Range:	Negative.
Limitations:	Pure isolate.
Availability:	Monday to Friday.
Turnaround Time:	One to three weeks.
Sample:	Positive isolate.
Forms Required:	TB Laboratory Requisition Form.
Sample Test Kit:	TB Culture Kit.
Turnaround Time:	One to three weeks.
Shipping Requirements:	Basic double packaging system for U. S Mail or Courier Service. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate.
Test Name:	<u><i>Nocardiosis</i> Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u><i>Paracoccidioidomycosis</i> Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u><i>Paragonimiasis</i> Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **Parainfluenza 1, 2, 3 Antibody**
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of recent or current infection with this agent
Test Includes: Quantitative IgG antibody complement fixation (CF) testing for each of these agents.
Significant Result: Seroconversion or four-fold increase in titer.
Limitations: Infection with one serotype may elicit a significant titer change to both the homologous agent and another Parainfluenza serotype. Mumps infections may also result in a heterotypic rise in antibodies to parainfluenza Type 2. Anticomplementary activity may interfere.
Availability: As required.
Turnaround Time: 2 to 7 days upon receipt of convalescent serum.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent serum. See instructions in test kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments: **Additional tests recommended:** Respiratory Virus Culture or Respiratory Virus Antibody Panel.

Test Name: **Parainfluenza Virus Culture**
 See Influenza Virus Culture.

Test Name: **Parasitic Serology (except for Toxoplasmosis)**
 See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **Parvovirus B19 IgM and IgG Antibody**
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of a recent or prior infection with this agent. In the absence of symptoms and when the IgM results is negative, the IgG test results can be used as an indicator of immunity.
Test Includes: Separate qualitative EIA testing for Parvovirus B19 IgM & IgG antibodies.
Significant Result: Presence of IgM indicates recent or current infection. IgM absent/IgG present suggests prior exposure.
Availability: As requested.
Turnaround Time: 3 to 7 days.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute phase serum specimen or convalescent for "immunity status". See instructions for sample collection in test kit.

Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Comments:	All suspect measles and rubella cases are routinely tested for parvovirus B19 IgM and IgG Antibody.
Test Name:	<u>Pertussis Culture</u> See <i>Bordetella pertussis</i> and other <i>Bordetella spp.</i> Culture.
Test Name:	<u>Pesticides and Industrial Chemicals in Food</u>
Lab and Phone #:	Analytical Chemistry Laboratory (617) 983-6653
Comments:	Call the laboratory for specific sampling instructions. Testing will be evaluated on a case by case basis.
Test Name:	<u>PFGE</u> See Bacterial Typing and Pulsed Field Gel Electrophoresis.
Test Name:	<u>Plague Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u>Plesiomonas shigelloides</u> See Enteric Pathogens, Referred Culture.
Test Name:	<u>Pneumonia</u> See Referred Bacterial Culture for Identification.
Test Name:	<u>Pneumonia, Atypical</u> See Mycoplasma pneumoniae Antibody; Respiratory Virus Antibody Panel; Psittacosis, and Q Fever Antibody.
Test Name:	<u>Poliovirus Culture</u> See Enterovirus Culture.
Test Name:	<u>Polychlorinated biphenyls (PCB), Serum</u> (for research purposes only)
Lab and Phone #:	Analytical Chemistry Laboratory (617) 983-6653
Use of Test:	PCB exposure assessment.
Test Includes:	Aroclor and specific congener analysis.

Turnaround Time: 30 working days.
Sample Volume: 5 mL of serum.
Container: Red topped vacutainer, no anticoagulant, no serum separator tubes.
Collection: Call laboratory for specific sample collection, storage and transport instructions.

Test Name: **Psittacosis**
See *Chlamydia psittaci* Antibody.

Test Name: **Pulsed Field Gel Electrophoresis (PFGE)**
See Bacterial Typing, and PFGE.

Test Name: **Q Fever Antibody**
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of recent or current infection with this agent
Test Includes: Quantitative IgG antibody CF testing for *Coxiella burnetii*.
Significant Result: Seroconversion or four-fold increase in titer.
Limitations: Anticomplementary activity may interfere.
Availability: As requested.
Turnaround Time: 2 to 7 days upon receipt of convalescent serum.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent serum. See instructions in test kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name: **Rabies Test, Antigen Detection, Human**
Sample sent to CDC.
Lab and Phone #: **Virus Isolation Laboratory (617) 983-6382**
Special Instructions: **Contact Epidemiology at (617) 983-6800 before submitting sample.**
Sample: Sample of brain or sample of a neck skin punch sent to the laboratory will be shipped to CDC.
Forms Required: Virus Serology Requisition Form or CDC Requisition Form.
Sample Collection: Collect a portion of brain or skin punch from the back of the neck.
Sample Test Kit: Provided by user.
Shipping Requirements: Transport to the laboratory within 24 hours at refrigerated temperatures. Use triple packaging system for transporting by Courier Service in accordance with CDC and DOT regulations. Apply a biohazard label and mark the outer container as appropriate.
Patient Preparation: Exposed patient should consult with physician and epidemiologist. It may be necessary to start Rabies post-exposure treatment immediately.

Comments:	Persons suspecting an exposure should notify their doctor and contact the Epidemiology Department at (617) 983-6800.
Test Name:	<u>Rabies Test, Antigen Detection, Non-Human</u>
Lab and Phone #:	Rabies Laboratory (617) 983-6385
Use of Test:	Identification of Rabies in animals.
Special Instructions:	Persons suspecting an exposure should notify their doctor and contact the Epidemiology Department at (617) 983-6800. With the exception of bats, only the head of the animal will be accepted. For bats, submit the whole body.
Limitations:	The different regions of the brain must be discernible to perform a satisfactory test. It is important that the sample be intact and not mutilated.
Availability:	Monday through Friday. Weekends and holidays when approved by epidemiologist.
Turnaround Time:	Same day on specimens received before 1:00 pm Monday through Friday. Next working day for specimens received after this time. Results of weekend testing will be reported by phone.
Sample:	Head or brain of animal. With the exception of bats, the whole body will not be accepted.
Sample Container:	Provided by user.
Forms Required:	Rabies Examination Requisition Form. Call the laboratory for a form.
Sample Test Kit:	Provided by user.
Sample Collection:	Animal heads (or brains) must be fresh and not crushed or mutilated.
Shipping Requirements:	Transport to the laboratory within 24 hours at refrigerated temperatures. Use triple packaging system for transporting by Courier Service in accordance with CDC regulations. Apply a biohazard label and mark the outer container "Clinical Diagnostic Specimen" as appropriate
Patient Preparation:	Exposed patient should consult with physician and epidemiologist. It may be necessary to start Rabies post-exposure treatment immediately.
Test Name:	<u>Referred Bacterial Culture for Identification</u>
	Non-Enteric, Public Health Panel
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	Definitive identification of bacteria of public health significance (see Limitations listed below).
Test Includes:	Identification of bacteria of public health significance. Enteric pathogens not included (See Enteric Pathogens, Referred Culture).
Limitations:	Panel includes the following organisms: <i>Bacillus anthracis</i> , <i>Bordetella</i> spp., <i>Brucella</i> spp., <i>Corynebacterium diphtheriae</i> , <i>Francisella tularensis</i> , <i>Haemophilus influenzae</i> , <i>Listeria monocytogenes</i> , <i>Neisseria gonorrhoeae</i> , <i>Neisseria meningitidis</i> and <i>Streptococcus pneumoniae</i> .
Availability:	Monday to Friday.
Turnaround Time:	2 days to 2 weeks.
Sample:	Pure culture on agar slant.
Forms Required:	Bacteriology Requisition Form.
Shipping Requirements:	Ship at room temperature in UN approved packagings. Package, mark, label

and ship as an infectious substance. See section on packaging and shipping specimens.

Comments: **Additional tests recommended:** Serogrouping/Serotyping of bacteria for use in epidemiological studies. Bacterial typing (PFGE), if involved in an outbreak.

Test Name: **Referred Culture (Bacterial) Serotyping (Non-enteric)**
(*N. meningitidis* *H. influenzae*, *L. pneumophila*, etc.)

Lab and Phone #: **Bacteriology Reference Laboratory (617) 983-6607**

Use of Test: To serotype or serogroup common pathogens for use in treatment selection and/or epidemiological studies.

Test Includes: Serogrouping of *Neisseria meningitidis*, *Legionella pneumophila*, and beta hemolytic *Streptococcus* spp.; serotyping of *Haemophilus influenzae*.

Limitations: Only done on organisms listed above.

Availability: Monday through Friday.

Turnaround Time: 1 to 3 days.

Sample: Pure culture on agar slant.

Forms Required: Bacteriology Requisition Form.

Shipping Requirements: Ship in UN approved packagings. Package, mark, label and ship sample as an infectious substance. If isolate is *N. meningitidis*, print "DO NOT REFRIGERATE" on outside of outer packing. See section on packaging and shipping specimens.

Comments: **Additional tests recommended:** Prior correct identification of *Neisseria meningitidis* and *Haemophilus influenzae* is required.

Test Name: **Referred Culture, Definitive Identification, Enteric Pathogens**
See Enteric Pathogens, Referred Culture.

Test Name: **Referred Culture, Definitive Identification, Mycobacteria**
See Mycobacteriology (TB) Identification (Referred Culture).

Test Name: **Referred Culture, Legionella**
See *Legionella* Culture.

Test Name: **Respiratory Syncytial Virus Antibody**
See RSV Antibody.

Test Name: **Respiratory Viruses Antibody Panel**

Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**

Use of Test: Serodiagnosis of recent or current infection with this agent

Test Includes: Quantitative IgG antibody complement fixation testing for influenza A and B, parainfluenza types 1-3, adenovirus, *Mycoplasma pneumoniae*, and respiratory

Significant Result:	syncytial virus.
Limitations:	Seroconversion or four-fold increase in titer.
Availability:	Anticomplementary activity may interfere.
Turnaround Time:	As required.
Sample and Volume:	2 to 7 days upon receipt of convalescent serum.
Forms Required:	3 mL of serum.
Sample Test Kit:	Virus Serology Requisition Form.
Sample Collection:	Virus Serology Kit.
Shipping Requirements:	Acute and convalescent serum. See instructions in test kit.
	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name:	<u>Rickettsia Antibody Panel</u>
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	Serodiagnosis of an infection with one of these agents.
Test Includes:	Quantitative total antibody IFA testing for Rocky Mountain spotted fever and Murine typhus.
Significant Result:	Four-fold titer change with convalescent titer \geq 1:128; single serum titer of 1:256 or greater.
Limitations:	Some cross-reactivity between these two agents occurs in the lower dilutions.
Availability:	As required.
Turnaround Time:	2 to 7 days.
Sample and Volume:	3 mL of serum.
Forms Required:	Virus Serology Requisition Form.
Sample Test Kit:	Virus Serology Kit.
Collection:	Usually acute and convalescent sera for diagnostic testing. See instructions in kit
Shipping Requirements:	Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name:	<u>RPR, (Rapid Plasma Reagin Card Test), Non-treponemal Syphilis Serology Test</u>
Lab and Phone #:	Bacteriology Laboratory (617) 983-6600
Use of Test:	Screening test for syphilis: The RPR test measures IgM and IgG antibodies to lipoidal material released from damaged host cells as well as to lipoproteinlike material, and possibly cardiolipin released from the treponemes. These antibodies are produced not only as a consequence to treponemal disease, but also in response to non-treponemal diseases in which tissue damage occurs. This test is also used to determine quantitative levels of non-treponemal antibodies to syphilis and to follow patients with syphilis who have been treated.

Test Includes:	QUALITATIVE SCREENING TESTING IS AVAILABLE ONLY ON SPECIMENS FROM ASSIGNED CLINICS: Assigned clinics are specific sites selected to monitor disease prevalence throughout the Commonwealth. Qualitative and Quantitative testing on specimens submitted: <ul style="list-style-type: none"> • For confirmation of reactive results obtained with non-treponemal screening tests • For antibody testing follow-ups • For assessment of treatment efficacy • For assessment of patients with symptomatology consistent with infectious syphilis (primary, secondary, or early latent stages)
Normal Range:	Non- Reactive.
Limitations:	Prozone reactions occasionally occur in the screening tests, which may result in false negative results. They occur when there is complete or partial inhibition of reactivity with undiluted serum. The RPR test cannot be used with spinal fluids. The RPR may be reactive in persons from areas where yaws, pinta or non-venereal syphilis is endemic. Biologic False Positive reactions occur occasionally in specimens from persons who abuse drugs, have diseases such as lupus erythematosus, or have recently been vaccinated. Persons treated during latent or late stages may remain serofast. The test is not specific for syphilis.
Availability:	Monday through Friday.
Turnaround Time:	1 to 5 Days.
Sample and Volume:	Serum (≥ 3 mL) or whole blood (5 to 10 mL) collected in a red top or Serum Separator Tube (SST). Serum is preferable to whole blood. Use 13mm x 100mm or 16mm x 100mm tubes for collection. Allow blood to clot at least 30 minutes. Separate serum if centrifuge is available.
Forms Required:	Syphilis Serology Test Request Form SS-1 (09/00).
Sample Test Kit:	Syphilis Serology Single Kit (holds one tube) or Syphilis Serology Multiple Kit (holds up to 9 tubes). These kits may be ordered by calling (617) 983-6640.
Sample Collection:	Venipuncture , collect 5 to 10 mL in red top tube or SST. Use 13mm x 100mm or 16mm x 100mm tubes for collection. Allow blood to clot at least 30 minutes. Separate serum if centrifuge is available.
Shipping Requirements:	Serum may be shipped at room temperature, cold or frozen. Whole blood must be maintained at a temperature between 2°C and 27°C. Use double packaging system for couriers or triple packaging system for USPS.
Test Name:	<u>RSV Antibody</u>
Lab and Phone #:	Virus Serology Laboratory (617) 983-6396
Use of Test:	Serodiagnosis of recent or current infection with this agent
Test Includes:	Quantitative complement fixation testing for IgG antibody to respiratory syncytial virus Quantitative IgG antibody CF testing for CMV.
Significant Result:	Seroconversion or four-fold increase in titer.
Availability:	Per as needed.
Turnaround Time:	2 to 7 days upon receipt of convalescent serum.
Sample and Volume:	3 mL of serum.
Forms Required:	Virus Serology Requisition Form.
Sample Test Kit:	Virus Serology Kit.

Sample Collection: Acute and convalescent serum. See instructions for collecting sample in test kit.

Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments: **Additional tests recommended:** Respiratory Virus Culture.

Test Name: **Rubella Antibody**

Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**

Use of Test: Confirmation of rubella infection.

Test Includes: Total rubella antibody testing by latex agglutination.

Significant Result: Seroconversion or four-fold increase in titer.

Limitations: Cannot distinguish between antibody produced in response to vaccination and antibody produced in response to wild strain rubella infection.

Availability: As required.

Turnaround Time: 1 to 3 days.

Sample and Volume: 3 mL of serum, no additives.

Forms Required: Virus Serology Requisition Form.

Sample Test Kit: Virus Serology Kit.

Sample Collection: Acute and possibly convalescent serum. See instructions in test kit.

Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments: **Additional tests recommended:** Use rubella IgM antibody for early diagnosis on acute serum specimen. Epidemiology (617) 983-6800 should be contacted for all suspect rubella cases. Parvovirus and measles antibody testing may be necessary for differential diagnosis.

Test Name: **Rubella IgM Antibody**

Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**

Use of Test: Confirmation of rubella infection.

Test Includes: Rubella IgM Solid Phase Immunosorbent Hemadsorption Assay.

Significant Result: Seroconversion or four-fold increase in titer.

Limitations: Cannot distinguish between antibody produced in response to vaccination and antibody produced in response to wild strain rubella infection.

Availability: As required.

Turnaround Time: 2 to 7 days.

Sample and Volume: 3 ml of serum.

Forms Required: Virus Serology Requisition Form.

Sample Test Kit: Virus Serology.

Sample Collection: Acute and possibly convalescent serum. See instructions in test kit.

Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer

container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional tests recommended: Use rubella latex agglutination assay and IgM antibody for early diagnosis on acute serum specimens. Epidemiology (617) 983-6800 should be contacted for all suspect rubella cases. Parvovirus and measles antibody testing may be necessary for differential diagnosis.

Test Name:

Rubella Virus Isolation

(Performed at Georgia State University)

Lab and Phone #:

Virus Isolation Laboratory (617) 983-6382

Test Includes:

Isolation of Rubella virus in cell culture.

Limitations:

Rubella virus is rarely isolated from clinical specimens. Serology is recommended.

Availability:

As requested.

Turnaround Time:

Approximately one month.

Sample:

Nasal wash (nasopharyngeal aspirate), nose/throat swabs, and urine.

Forms Required:

Virus Isolation Requisition Form.

Sample Test Kit:

Virus Isolation Kit.

Sample Collection:

Call the Laboratory for instructions.

Shipping Requirements:

Transport to the laboratory within 24 hours at refrigerator temperature. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Comments:

Additional tests recommended: IgM serology is the recommended test for evidence of Rubella virus infection.

Note: Culture for additional viruses may be performed at the discretion of the laboratory. Epidemiology (617) 983-6800 should be contacted for all suspect rubella cases.

Test Name:

Rubeola

See Measles Listings.

Test Name:

Salmonella Culture, Food

See Salmonella Isolation, Food.

Test Name:

Salmonella Isolation, Food

Lab and Phone #:

Bacteriology Food Laboratory (617) 983-6610

Use of Test:

To support epidemiologic evidence implicating a food as a possible source of illness.

Special Instructions:

Food samples must be submitted through local or state public health agencies and implicated in an outbreak (1 or more ill consumers). The laboratory should be notified by phone prior to submission. If the sample is a

commercial food or if the suspect agent is chemical, the laboratory investigation is handled by the SLI Environmental Chemistry Laboratory or the FDA.

Test Includes: Enrichment and culture of sample and serotyping on positive cultures, organoleptics.

Limitations: Foods will be examined for *Salmonella* only if the clinical and epidemiologic information is compatible with *Salmonella* foodborne disease.

Availability: Monday through Friday.

Turnaround Time: 4 to 7 days.

Specimen and Volume: More than 200 grams of implicated food

Forms Required: Sample Submission Forms are obtainable through the Food Microbiology Lab at (617) 983-6610, MA Division of Food and Drugs, Food Protection Program at (617) 983-6712, and the local Board of Health.

Sample Container: Original sample container as submitted by inspector or other sterile leak proof container

Sample Collection: Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Label with source (name of establishment or individual), type of sample, time and date of collection along with other pertinent information.

Shipping Requirements: Transport or ship samples on ice in appropriate packagings.

Comments: **Additional tests recommended:** Enteric Pathogens, Routine Culture.

Test Name: [Salmonellosis](#)
See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.

Test Name: [Schistosomiasis Serology](#)
See CDC Serology–Bacterial/Fungal/Protozoal

Test Name: [Serotyping Enteric Pathogens \(*Salmonella*, *Shigella*, *Vibrio cholerae*, *E. coli* O157:H7\)](#)
See Enteric Pathogens, Referred Culture.

Test Name: [Serotyping *Streptococcus pneumoniae*, *Streptococcus pyogenes* \(M and T Typing\)](#)
Lab and Phone #: **Bacteriology Reference Laboratory (617) 983-6607**
Use of Test: To determine serotype of *S. pneumoniae* in patients who received the pneumococcal vaccine or have multiple isolates (different infections); for epidemiological purposes in possible outbreaks; for treatment purposes and surveillance.

Test Includes: Confirmation of *S. pneumoniae*. Samples are shipped to the CDC for serotyping

Limitations: Reason for request must meet criteria above. Prior consultation with CDC may be required. *S. pyogenes* for M and T typing must have been isolated from normally sterile body fluids unless specific arrangements have been made with CDC Streptococcus Laboratory. Consult with Bacteriology at (617) 983-6607

for CDC referral.
Availability: Monday through Friday.
Turnaround Time: 3 weeks to several months.
Sample: Pure culture on an agar slant.
Forms Required: Bacteriology Requisition or CDC Submission Form.
Shipping Requirements: Use triple packaging system. Follow USPS and DOT regulations.

Test Name: [Shiga Toxin-Producing *E. coli* \(STEC\)](#)
 See Shiga Toxin (Verotoxin) Assay.

Test Name: [Shiga Toxin \(Verotoxin\) Assay](#)
Lab and Phone #: **Bacteriology Laboratory (617) 983-6600**
Use of Test: Confirm presence of Shiga toxin. Isolate Shiga-toxin producing organism(s) for subsequent identification.
Test Includes: Test for Shiga toxin(s) by commercial in-vitro microwell Enzyme Immunoassay. Isolation of Shiga-toxin producing organism from mixed positive specimens for subsequent identification. Confirmation of suspected Shiga toxin-producing *E. coli* (STEC) or other suspected Shiga toxin producing organism and subsequent serotyping if applicable.
Normal Range: Negative.
Limitations: Mixed cultures and stool specimens must be submitted in a timely manner. Shiga toxin-producing organisms are usually present in far fewer numbers than normal background organisms and are easily overgrown by them. Isolation can be problematic when mixed cultures or stools are not submitted as soon as possible. Refrigeration helps retard overgrowth by background organisms.
Availability: Once per week.
Turnaround Time: 2 to 7 days for confirmation of mixed culture and/or stool specimen. Successful isolation of the Shiga toxin-producing organism can take a few days longer. Final confirmation and serotyping are performed by the Centers of Disease Control (CDC), Atlanta, results of which are often not available for a month or more after submission to CDC.
Sample: Pure subculture is preferable. Broth culture on ice and/or fresh stool on ice are also acceptable.
Forms Required: Bacteriology Requisition Form obtained by calling (617) 983-6600 or Enteric Requisition Form, EC-1, included in the Enteric (stool collection/transport) Kit provided by the SLI.
Sample Container: Screw-capped tube for cultures. A sterile stool collection container or enteric collection/transport medium for fresh stool provided by the SLI.
Sample Collection: Collect stool specimen either in a sterile collection jar (ship on ice), or in the enteric kit (collection/transport medium) provided by the SLI. Kits may be ordered by calling (617) 983-6640.
Shipping Requirements: Ship pure cultures or stools in Enteric collection/transport medium at room temperature. Ship mixed cultures or fresh stools with packaged refrigerant. Freezing is not recommended. Ship all submissions suspected to be Shiga toxin positive as infectious substances. Ship at ambient temperatures

using UN approved packagings. Mark and label the outer packaging as an infectious substance. See section on packaging and shipping specimens.

Test Name: **Shigella Culture, Food**
See *Shigella* Isolation, Food.

Test Name: **Shigella Isolation, Food**
Lab and Phone #: **Bacteriology Food Laboratory (617) 983-6610**
Use of Test: To support epidemiologic evidence implicating a food as a possible source of illness
Special Instructions: Food samples must be submitted through local or state public health agencies and implicated in an outbreak (1 or more ill consumers). The lab should be notified by phone prior to submission. If the sample is a commercial food or if the suspect agent is chemical, the laboratory investigation is handled by the Environmental Chemistry Laboratory or the FDA.
Test Includes: Enrichment and culture of sample and serotyping on positive cultures, Organoleptics.
Limitations: Foods will be examined for *Shigella* only if the clinical and epidemiologic information is compatible with *Shigella* foodborne disease.
Availability: Monday through Friday.
Turnaround Time: 3 to 7 days.
Sample and Volume: More than 200 grams of implicated food.
Forms Required: Sample Submission Forms are obtainable through the Food Microbiology Lab at (617) 983-6610, MA Division of Food and Drugs at (617) 983-6712, and the local Board of Health.
Sample Container: Original sample container as submitted by inspector or other sterile leak proof container.
Sample Collection: Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Label with source (name of establishment or individual), type of sample, time and date of collection along with other pertinent information.
Shipping Requirements: Transport or ship samples on ice in appropriate packagings.
Comments: **Additional tests recommended:** Enteric Pathogens, Routine Culture.

Test Name: **Shigellosis**
See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.

Test Name: **Sporotrichosis Serology**
See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **Staphylococcus aureus Culture, Food**
See *Staphylococcus aureus* Plate Count, Food.

Test Name:	<u><i>Staphylococcus aureus</i>, Culture, Stool</u> See Enteric Pathogens, Routine Culture Note: Only available through local Health Departments in Massachusetts. Limited to outbreak situations wherein <i>S. aureus</i> has been isolated and quantified in significant numbers from related food samples.
Test Name:	<u><i>Staphylococcus aureus</i> Plate Count, Food</u>
Lab and Phone #:	Bacteriology Food Laboratory (617) 983-6610
Use of Test:	To support epidemiologic evidence implicating food as a source of illness.
Special Instructions:	Food samples must be submitted through local or state public health agencies and implicated in an outbreak (1 or more ill consumers). The laboratory should be notified by phone prior to submission. If the sample is a commercial food or if the suspect agent is chemical, the laboratory investigation is handled by the Environmental Chemistry Laboratory at the SLI or by the FDA.
Test Includes:	Culture of sample (Baird-parker Agar plate counts), organoleptics.
Limitations:	Foods will be examined for <i>S. aureus</i> only if the clinical and epidemiologic information is compatible with <i>S. aureus</i> foodborne disease.
Contraindications:	Food samples are examined from single or multiple cases of illness.
Availability:	Monday through Friday.
Turnaround Time:	2 to 4 days.
Sample and Volume:	200 grams of implicated food.
Forms Required:	Sample Submission Forms are obtainable through the Food Microbiology Laboratory at (617) 983-6610, MA Division of Food and Drugs, Food Protection Program at (617) 983-6712, and local Board of Health.
Sample Container:	Original sample container as submitted by inspector or other sterile leak proof container.
Sample Collection:	Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Label with source (name of establishment or individual), type of sample, time and date of collection along with other pertinent information.
Shipping Requirements:	Transport or ship samples on ice in appropriate packagings.
Comments:	Additional tests recommended: <i>Staphylococcus aureus</i> Clinical Culture.

Test Name:	<u><i>Staphylococcus aureus</i>, <i>Streptococcus pyogenes</i> Culture for Toxin Testing</u>
Lab and Phone #:	Bacteriology Reference Laboratory (617) 983-6607
Use of Test:	To determine if isolate is responsible for Toxic Shock Syndrome or a "Flesh Eating" Group A <i>Streptococcus</i> .
Special Instructions:	If <i>S. aureus</i> stool culture on food handlers is desired, prior consultation is required by calling (617) 983-6610.
Test Includes:	Confirmation of <i>S. aureus</i> and <i>S. pyogenes</i> and submitted to the CDC, Atlanta, GA for toxin testing on cultures that are confirmed with prior consultation.
Availability:	Monday through Friday.
Turnaround Time:	3 weeks to several months.
Sample:	Pure culture on an agar slant.
Forms Required:	Bacteriology Reference Laboratory Form or CDC Submission Form.

Shipping Requirements:	Ship all submissions suspected to be positive as infectious substances. Ship at ambient temperatures using UN approved packagings. Mark and label the outer packaging as an infectious substance to conform with USPS and DOT regulations. See section on packaging and shipping specimens.
Test Name:	<u>STEC (Shiga Toxin-Producing <i>E. coli</i>)</u> See Shiga Toxin (Verotoxin) Assay.
Test Name:	<u>Stool Culture</u> See Enteric Pathogens, Routine Culture.
Test Name:	<u><i>Streptococcus pneumoniae</i>, Serotyping</u> See Serotyping <i>Streptococcus pneumoniae</i> , <i>Streptococcus pyogenes</i> (M and T Typing).
Test Name:	<u><i>Streptococcus pyogenes</i> (<i>Streptococcus</i> sp. Serogroup A), M and T typing</u> See Serotyping <i>Streptococcus pneumoniae</i> , <i>Streptococcus pyogenes</i> (M and T Typing).
Test Name:	<u>Strongyloides Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u>Syphilis Serology</u> See RPR (Rapid Plasma Reagin Card Test), Syphilis-VDRL-Cerebrospinal Fluid, (CSF), and TP-PA Antibody, (Treponema pallidum Particle Agglutination).
Test Name:	<u>Syphilis VDRL-Cerebrospinal Fluid (CSF)</u>
Lab and Phone #	Bacteriology Laboratory (617) 983-6600
Use of Test:	To provide serologic evidence of neurologic exposure to syphilis. VDRL-CSF is the only standardized test for neurosyphilis. The VDRL test measures IgM and IgG antibodies to lipoidal material released from damaged host cells as well as to lipoproteinlike material, and possibly cardiolipin released from the treponemes. These antibodies are produced not only as a consequence to treponemal disease, but also in response to non-treponemal diseases in which tissue damage occurs.
Test Includes:	Qualitative screening of non-treponemal (reagin) antibodies in spinal fluid. Quantitative titers are performed on positive screening samples.
Normal Range:	Non-reactive.
Limitations:	A negative result can occur in some neurosyphilis patients. Small amounts of blood or serum may cause a false positive result.
Availability:	Usually run once per week.
Turnaround Time:	1 to 10 days

Sample and Volume: 1 to 3 mL of cerebrospinal fluid from a lumbar puncture into leakproof tubes.
Forms Required: Syphilis Serology Test Request Form SS-1 (09/00).
Sample Test Kit: Syphilis Serology Single Kit (holds one tube) or Syphilis Serology Multiple Kit (holds up to 9 tubes). These kits may be ordered by calling (617) 983-6640.
Sample Collection: Spinal tap, 1 to 3 mL, submitted in leak proof vials or tubes.
Shipping Requirements: Use double packaging system if transporting by couriers. Use triple packaging system if shipping using USPS and DOT regulations.

Test Name: **Taenia solium Serology**
 See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **TB**
 See Mycobacteriology (TB) listings.

Test Name: **Thermophilic Actinomycetes (Farmer’s Lung)**
 See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **Toxic Shock, Toxin Testing for *Staphylococcus aureus*, *Streptococcus pyogenes***
 See *Staphylococcus aureus*, *Streptococcus pyogenes* Culture for Toxin Testing.

Test Name: **Toxocara canis Serology**
 See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **TP-PA Antibody (*Treponema pallidum* Particle Agglutination)**
Lab and Phone #: **Bacteriology Laboratory (617) 983-6600**
Use of Test: Test is most commonly used for the detection of antibodies to *Treponema pallidum*. Testing is performed on specimens that are reactive with non-treponemal tests (e.g., RPR) and on specimens that are reactive by less commonly used antibody screening tests (e.g., Olympus PK). TP-PA testing of specimens that are non-reactive with non-treponemal tests is limited and must be approved in advance by STD Laboratory staff. More information may be obtained by calling (617) 983-6614.
Method of Test: The TP-PA is a treponemal test for the serologic detection of antibodies to various species and subspecies of pathogenic *Treponema*, the causative agents of syphilis, yaws, pinta, bejel and endemic syphilis.
Normal Range: Non- Reactive.
Limitations: In a small percentage of healthy individuals false positives may also appear. These are often transient and the cause is unknown. They may occur in association with other underlying illnesses. Positives may occur in individuals from areas where yaws or pinta was or is endemic. Treponemal

	test results may remain positive for life and cannot be used to evaluate response to treatment or confirm reinfection.
Availability:	Monday through Friday.
Turnaround Time:	1 to 5 Days.
Sample and Volume:	Serum (≥ 3 mL) or whole blood (5 to 10 mL) collected in a red top or Serum Separator Tube (SST). Serum is preferable to whole blood. Use 13mm x 100mm or 16mm x 100mm tubes for collection. Allow blood to clot at least 30 minutes. Separate serum if centrifuge is available.
Forms Required:	Syphilis Serology Test Request Form SS-1 (09/00).
Sample Test Kit:	Syphilis Serology Single Kit (holds one tube) or Syphilis Serology Multiple Kit (holds up to 9 tubes). These kits may be ordered by calling (617) 983-6640.
Sample Collection:	Venipuncture, collect 5 to 10 mL in a red top tube or SST. Use 13 mm x 100mm or 16mm x 100mm tubes for collection. Allow blood to clot at least 30 minutes. Separate serum if centrifuge is available.
Shipping Requirements:	Serum may be shipped at room temperature, cold or frozen. Whole blood must be maintained at a temperature between 2°C and 27°C. Use triple packaging system if shipping by USPS. Use double packaging system if transporting by couriers.
Test Name:	<u>Trichinosis Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u>Trypanosomiasis (South American) Serology</u> See CDC Serology–Bacterial/Fungal/Protozoal.
Test Name:	<u>Tuberculosis</u> See Mycobacteriology (TB) listings.
Test Name:	<u>Tularemia</u> See <i>Francisella tularensis</i> , Culture and/or <i>Francisella tularensis</i> , Serology.
Test Name:	<u>Typhoid Fever (<i>Salmonella typhi</i>)</u> See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.
Test Name:	<u>Typhus Antibody</u> See Rickettsia Antibody Panel.
Test Name:	<u>Urine Culture, Mycobacteria</u> See Mycobacteria (TB) Smear and Culture (AFB).

Test Name: **Varicella Zoster Antibody**
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Serodiagnosis of recent or current infection with this agent.
Test Includes: Quantitative complement fixation IgG antibody testing for Varicella zoster virus.
Significant Result: Seroconversion or four-fold increase in titer.
Limitations: Anticomplementary activity may interfere.
Availability: As required.
Turnaround Time: 2 to 7 days upon receipt of convalescent serum.
Sample and Volume: 3 mL of serum.
Forms Required: Virus Serology Requisition Form.
Sample Test Kit: Virus Serology Kit.
Sample Collection: Acute and convalescent serum. See instructions in test kit.
Shipping Requirements: Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.

Test Name: **VDRL-CSF**
 See Syphilis-VDRL-Cerebrospinal Fluid (CSF).

Test Name: **Verotoxin Assay**
 See Shiga-toxin (Verotoxin) Assay.

Test Name: **Vibriosis**
 See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.

Test Name: **Visceral Larva Migrans (Toxocariasis)**
 See CDC Serology–Bacterial/Fungal/Protozoal.

Test Name: **West Nile Virus, Avian**
 See Arbovirus PCR (Non-Human).

Test Name: **West Nile Virus Culture**
 See Arbovirus Listings.

Test Name: **West Nile Virus EIA**
Lab and Phone #: **Virus Serology Laboratory (617) 983-6396**
Use of Test: Diagnosis of current infection with West Nile Virus.
Test Includes: Qualitative IgM capture EIA and IgG indirect EIA testing.
Significant Result: Positive IgM or seroconversion in IgG EIA. Confirmation by plaque reduction

Limitations:	neutralization necessary.
Availability:	May cross-react with other arboviruses.
Turnaround Time:	As requested and routinely from May to October.
Sample and Volume:	2 to 5 days.
	3 mL of serum, no additives. At least 1 mL of cerebrospinal fluid collected aseptically.
Forms Required:	Virus Serology /Arbovirus Requisition Form.
Sample Test Kit:	Virus Serology.
Sample Collection:	IgM: Acute serum collected 1-3 days after onset; convalescent collected 8 or more days after onset may be necessary. IgG: Acute serum may be used for testing but convalescent collected 8 or more days after onset may be necessary.
Shipping Requirements:	Ship sample at refrigerated temperatures. Use double packaging system for transporting by Courier Service. Use triple packaging system for USPS. Apply a biohazard label and mark the outer container "Clinical Specimen" as appropriate. If the sample contains a known pathogen, use a triple packaging system and label and mark the outside of the container according to DOT and/or USPS regulations for infectious substances.
Test Name:	<u>Whooping Cough</u> See <i>Bordetella pertussis</i> and other <i>Bordetella</i> spp. Culture and/or <i>Bordetella pertussis</i> Serology.
Test Name:	<u>Yersiniosis</u> See Enteric Pathogens, Referred Culture and/or Enteric Pathogens, Routine Culture.
Test Name:	<u>Zinc Protoporphyrin, (ZnPP) Whole Blood</u>
Lab and Phone #:	Environmental Chemistry/Childhood Lead Screening (617) 983-6665
Use of Test:	Indirect measure of lead poisoning and iron deficiency.
Method of Analysis:	Hematofluorometry
Acceptable Range:	Children 0 to 35µg/dL
Turnaround Time:	2 working days
Sample and Volume:	100 µL whole blood; collect with EDTA; heparin is also acceptable.
Sampling Instructions:	Call laboratory for sampling instructions.
Forms Required:	Childhood Lead Screening Sample Submission Form.
Sample Container:	Microcuvette capillary collection system, amber colored, coated with EDTA. Call laboratory for supplies.
Sample Collection:	Fingerstick or venipuncture. EDTA is the preferred anticoagulant.
Shipping Requirements:	Keep samples refrigerated before mailing. Avoid exposing samples to extreme temperatures during shipping. Use double packaging system for transporting clinical diagnostic specimens by courier. Use triple packaging system when sending clinical blood samples by USPS. Use biohazard stickers on primary receptacles and outer packings. Label outer packings "Diagnostic Specimen Enclosed" as required by USPS and CDC.

Comments:

Elevated in lead poisoning. See Centers for Disease Control guidelines for interpretation of Lead and Zinc Protoporphyrin blood levels at (<http://cdc.gov/nceh/lead/Publications>)

Test Name:

Zygomycosis Serology

See CDC Serology–Bacterial/Fungal/Protozoal.